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## **4.6 RECREATION**

### **4.6.1 INTRODUCTION TO RECREATION**

This chapter describes the recreational facilities and recreational opportunities associated with, and potentially affected by, the project. Federal Energy Regulatory Commission (FERC) requirements for providing and maintaining opportunities for public recreation and recreational facilities are explained in this chapter. Facilities (e.g., access trails, boat ramps, camp grounds, parking areas, and sanitary facilities) that are required under a particular FERC license are referred to as “formal” facilities. “Informal” facilities are those that occur on Pacific Gas and Electric Company’s lands and are not required by a FERC license.

Each of the project’s regional and individual bundles supports recreational activities. Popular activities include boating, fishing, hiking, backpacking, camping, horseback riding, bird watching, cross-country skiing, hunting, recreational gold mining and picnicking. The project could affect these activities (and facilities that support these activities) in two fundamental ways:

1. First, potential changes in the operation of hydroelectric facilities could alter the characteristics of reservoirs and streams, thereby affecting water-based recreational activities such as boating and fishing. Changes in hydroelectric operations could also affect camping activities that directly rely on conditions in license-related reservoirs and streams; and
2. Second, the divestiture of Pacific Gas and Electric Company hydroelectric facilities, FERC Licensed Areas, and Watershed Lands could affect land-based recreational activities. This could occur if a new owner acted to restrict access to previously accessible recreational uses, or if a new owner chooses to limit the development or maintenance of informal recreational facilities such as campgrounds that are not required as a condition of a FERC license.

This chapter analyzes the potential impact of the project on water-based and land-based recreational facilities and opportunities. Where significant adverse effects (as defined by the California Environmental Quality Act [CEQA]) are identified in this chapter, mitigation measures are proposed to reduce the effect of these impacts.

The quality and intensity of recreational use is affected by a wide variety of environmental features such as hydrology, water quality, fisheries and terrestrial biological resources, aesthetics, and land use. As such, the analyses presented in other chapters of this Environmental Impact Report (EIR) that address project impacts related to these issue areas are referenced repeatedly below.

### **4.6.2 SYSTEM-WIDE REGULATORY CONTEXT**

#### **4.6.2.1 Federal Regulations and Policies**

FERC requires licensees to construct, maintain, and operate recreational facilities where possible to meet recreational demand, given the unique characteristics of each site and public safety concerns (Standard Public Recreation Facility Article in FERC licenses). Recreational facilities may include,

for example, rest stops and parking areas, boat launching ramps, docks, picnic areas, camping areas, and Recreational vehicle (RV) hookups. Operation and maintenance of these facilities may include providing services such as restrooms, lighting, potable water, and garbage service.

FERC may require licensees to maintain recreation plans approved by FERC to identify what facilities are appropriate given the local site characteristics and interests of the public. Each licensee is required to monitor the public use of the facilities and to file a Licensed Hydropower Development Recreation Report (Form 80 Report) every six years (18 CFR Part 8, Section 8.2). The Form 80 Report includes information regarding the existing levels and patterns of use, and describes the potential for additional recreational opportunities. In addition to reviewing the Form 80 Reports, FERC inspects each licensed recreational facility at least every six years. In practice, FERC conducts the inspections every three to five years.

In addition to the constructed facilities, lands contained within FERC Licensed Areas that do not need to be secured for safety reasons are open to the public for recreational use. FERC requires licensees to provide the public with reasonable free access to FERC License Areas for recreational purposes (Standard Public Recreation Access Article in FERC licenses). The public use of such areas is referred to in this EIR as a dispersed use.

In addition to requiring access and physical improvements, FERC often requires that the licensed facilities be operated in such a way as to accommodate upstream and downstream recreational uses. For example, some licenses set reservoir water surface elevations to accommodate fishing and boating, and minimum water releases or rates of change of water releases to protect downstream fishing and boating (18 CFR Part 8, Section 8.1).

FERC requires licensees to inform the public of the license's recreational opportunities. Such efforts are to include posting and maintaining signs at access points giving the name and owner of the licensed facility, the FERC license number, directions to the areas that are available for public recreation use, permissible times and activities, and where to obtain additional information at local offices of the licensee in the vicinity of the license. In addition, licensees are to post at such locations conspicuous notice that the recreational facilities are open to all members of the public without discrimination (18 CFR Part 8, Section 8.2).

To ensure public safety at and near the hydroelectric facilities, Pacific Gas and Electric Company has installed and maintains fences, signage and other safety features. Such features are required by FERC and identified in the Public Safety Plan and/or recreation plan for individual FERC-licensed projects (see Section 4.9, Hazards and Hazardous Materials).

Some of the recreational facilities associated with Pacific Gas and Electric Company's FERC-licensed projects are operated and maintained by Pacific Gas and Electric Company. For other facilities, Pacific Gas and Electric Company contracts with service providers or concessionaires for day-to-day operations and maintenance. Where facilities are on public lands, such as National

Forest land, they are maintained in accordance with agreements with the land-holding agency. The facilities on public lands are often part of larger recreational facilities or areas maintained by a public agency. In some locations, Pacific Gas and Electric Company provides an annual payment for the operation and maintenance of the facilities that are serviced by the land-holding agency.

Pacific Gas and Electric Company has established permitting processes in some areas in order to regulate and monitor private recreational facilities and activities operated or conducted by others that occur on Project Lands. This is to ensure that such uses are compatible with the FERC licenses and are conducted in a manner that protects environmental resources. Such permit systems are authorized by FERC. Permits may cover, for example, private docks and retaining walls. Generally these structures must meet prescribed criteria in order to receive permits.

In addition to the recreational facilities provided on FERC-licensed areas, Pacific Gas and Electric Company leases some of its privately held lands inside and outside the FERC boundaries for recreational uses. These leases are most often for camps sponsored by non-profit organizations, such as the Boy Scouts, religious organizations, and the Pacific Service Employees Association (PSEA). The organizations are generally responsible for operating and maintaining the facilities on leased lands.

In addition, Pacific Gas and Electric Company has historically facilitated local recreation inside and outside of FERC-licensed areas, in ways that exceed FERC requirements. Most of these practices have been for short-term uses, such as one-day whitewater boat races. Some of these activities have entailed modifying operating procedures for the duration of the event, or providing financial or logistical support. Some events have occurred only one time; others occur annually. Pacific Gas and Electric Company participation in these activities is discretionary and has generally not been formalized in written agreements or incorporated in the recreation plans.

#### **4.6.2.2 State Regulations and Policies**

The State of California has broad authority and responsibility in the planning and management of the state's recreation resources. Some State agencies have direct regulatory authority over recreation-related activities and facilities through the administration of statewide programs. Three such agencies include the California Department of Boating and Waterways (DBW), California Department of Fish and Game (CDFG) and California Department of Parks and Recreation (CDPR). These agencies and their role in recreation management are discussed below. Other State agencies indirectly influence the quality and intensity of recreational use in California through the management of resources on which recreation depends. These include, but are not limited to, the California Department of Forestry and Fire Protection (CDF), Department of Water Resources (DWR), State Water Resources Control Board (SWRCB), Wildlife Conservation Board (WCB), State Lands Commission (SLC), and the Department of Conservation.

### **California Department of Boating and Waterways**

Under the authorities of the Harbors and Navigation Code, the Fish and Game Code, the Government Code, the Health and Safety Code, the Penal Code, the Public Resources Code, the Vehicle Code, the Water Code, and Titles 8, 13, 14 and 23 of the California Code of Regulations, the DBW has various powers and responsibilities to administer statewide programs. The general breadth of these programs embraces boating safety and education, regulation and enforcement, environmental protection and enhancement, as well as safe and appropriate public boating access to the waters of the State of California.

### **California Department of Fish and Game**

The CDFG has special expertise and responsibilities defined in the State Fish and Game Code and other statutes (Fish and Game Code, §§ 1801 and 1802; Cal. Code Regs. Tit. 14 §§ 15209, 15386) with regard to the state's fish and wildlife resources. It is the objective of CDFG to encourage the preservation, conservation, and maintenance of wildlife resources under the jurisdiction and influence of the State and provide for the beneficial recreational use and enjoyment of wildlife by all citizens of the State.

#### **4.6.3 SYSTEM-WIDE SETTING**

Pacific Gas and Electric Company hydroelectric facilities and lands support a broad variety of recreational activities including, but not limited to, fishing, swimming, boating, camping, hiking, biking, picnicking, horseback riding, bird-watching, and recreational mining. The maintenance of many of the recreational facilities and the accommodation of related recreational activities are specified in the conditions of the FERC licenses for individual licenses within the five regional bundles. However, recreational facilities or opportunities that occur outside of FERC license areas are often not subject to FERC license conditions.

FERC-licensed lands and other Watershed Lands that are proposed for sale contain numerous public and private roads and trails. These roads and trails often provide the only means of access to recreational facilities and uses on Pacific Gas and Electric Company lands or areas beyond those lands. The following section describes specific recreational facilities and opportunities contained in the Pacific Gas and Electric Company hydroelectric generation assets and related lands.

#### **4.6.4 REGIONAL AND LOCAL SETTING AND REGULATORY CONTEXT**

##### **4.6.4.1 Shasta Regional Bundle**

###### **Regional Setting**

Shasta Regional Bundle includes significant recreational opportunities. Recreational opportunities in this watershed include those on the Shasta-Trinity National Forest and Lassen National Forest. The Watershed Land's proximity to the Shasta-Trinity and Lassen National Forest lands and the

National Forest road system enhance public accessibility to recreational features located in the regional bundle. Table 4.6-1 outlines the licenses within the Shasta Regional Bundle.

**Table 4.6-1 Pacific Gas and Electric Company Hydroelectric Licenses within the Shasta Regional Bundle**

Bundle:	License:
Bundle 1: Hat Creek	Hat Creek 1 and 2 (FERC 2661)
Bundle 2: Pit River	Pit 1 (FERC 2687)
	Pit 3, 4, and 5 (FERC 0233)
	McCloud-Pit (FERC 2106)
Bundle 3: Kilarc-Cow Creek	Kilarc-Cow Creek (FERC 0606)
Bundle 4: Battle Creek	North Battle Creek (FERC 1121)

Shasta-Trinity National Forest contains 81 campgrounds with 1,355 camping units, 20 picnic areas with 127 units, 14 vehicle parking areas for boaters, 3-day use swim areas, and 20 resorts and marinas on 1,300 acres. Shasta-Trinity Forest also provides opportunities for dispersed recreation at locations such as Castle Crags, Chancelulla, Mt. Shasta, Trinity Alps, and Yolla Bolly-Middle Eel (USFS, 1995b).

#### ***Shasta-Trinity National Forest***

Shasta-Trinity National Forest developed recreation use is 1.5 million recreation user days, which is 65 percent of the theoretical maximum capacity for developed facilities. According to U.S. Forest Service (USFS) standards, demand exceeds supply for developed recreational facilities in Shasta-Trinity National Forest. Some of the developed recreation sites are reported to be in poor condition (USFS, 1995b).

Recreation opportunities in this watershed include those on the Shasta-Trinity National Forest, the Modoc National Forest, and the Lassen National Forest. The Shasta-Trinity National Forest contains 81 campgrounds with 1,355 camping units, 20 picnic areas with 127 units, 14 parking areas for boaters, 3 day use swim areas, and 20 resorts and marinas on 1,300 acres. The Shasta-Trinity Forest also provides opportunities for dispersed recreation at locations such as Castle Crags, Chancelulla, Mt. Shasta, Trinity Alps, and Yolla Bolly-Middle Eel (USFS, 10995b).

#### ***Lassen National Forest***

Lassen National Forest offers 64 developed public recreational facilities (USFS, 1992a). There are six picnic areas, four winter sports sites (Asphan, Morgan Summit, Swain Mountain, and Jonesville Snowmobile Park), three boat ramps and two swimming areas in the Lassen National Forest (USFS, 1992a). Dispersed recreation in this national forest includes camping, hunting, fishing, hiking, horseback riding, driving for pleasure, picnicking, snowmobiling, skiing and off-highway vehicle use.

Lassen National Forest administers special use permits for private recreational facilities available to the public. These include 400 recreation units in nine tracts, four organization camps, one lodge resort, two small ski areas, a marina, and one rest stop (USFS, 1992A).

Within Lassen National Forest there is a maximum practical campground capacity of 567,155 recreation user days. In 1990, use was 420,400 Recreation User Days. The Forest Land and Resource Management Plan regards the camping facilities as adequate and identifies sites that can be used to expand camping opportunities in the forest (USFS, 1992A).

The Shasta-Cascade Wonderland is a regional recreation area covering eight counties and 30,000 square miles in northeastern California, including the Lassen National Forest, centering on Redding, California. There are numerous lakes and reservoirs in the Shasta-Cascade Wonderland, which offer a wide variety of water-oriented recreation, including Shasta, Whiskeytown, and Clair-Engle lakes.

### **Local Regulations and Policies**

#### ***Shasta-Trinity National Forest Land and Resource Management Plan***

The Shasta-Trinity National Forest Land and Resource Management Plan recreation policy requires management of the forest to provide a variety of high quality outdoor recreation experiences. Use of the forest by the disadvantaged, physically challenged, and minorities must be facilitated. Increased emphasis is to be placed on areas of national significance including Wild and Scenic Rivers.

#### ***Lassen National Forest Land and Resource Management Plan***

The Lassen National Forest Land and Resource Management Plan recreation policy provides for a wide range of outdoor recreational opportunities, including winter sports, by furnishing different levels of access, service, facilities, and information. Interpretive services and facilities are to be provided to inform the public about forest resources and management. Policies are provided requiring continued private operation of developed recreation sites and partnership with local communities to expand recreational opportunities (USFS, 1992a).

### **Bundle 1: Hat Creek**

The Hat Creek Bundle contains one FERC-licensed project, the Hat Creek 1 and 2 project, located in Shasta County within the Lassen National Forest near Cassel, about 60 miles east of Redding. Hat Creek is a part of the Upper-Sacramento River system. Recreation site users within this bundle can shop in the nearby communities of Burney and Old Station.

The Hat Creek Bundle is located between Mount Lassen National Park and Mount Shasta in the Cascade Mountains. Regionally, recreational facilities are available in Modoc National Forest to the north, Shasta-Trinity National Forest and Lassen National Forest. Nearby recreational facilities

include Burney Falls State Park and facilities at other Pacific Gas and Electric Company hydroelectric facilities in the area. Recreational opportunities in the area are as described above for the Shasta-Trinity National Forest and the Lassen National Forest.

### ***Hat Creek 1 and 2 (FERC 2661)***

The primary recreation resource associated with Hat Creek 1 and 2 is its sports fishery. The stream, lakes and reservoirs of the area, augmented by fish planting, provide a self-sustaining population of rainbow trout and brown trout. These waters also contain populations of non-game fish such as suckers, hardheads, Sacramento pike minnow, and tui chubs. The Hat Creek 1 and 2 Project Lands also contain game habitat and has received moderate hunting and sightseeing use. Because of the quality of the natural environment in the area, most of the land has been rated a Class III Natural Environment Area (classification is from the Outdoor Recreation Resources Review Commission [a governmental commission made up of local, State, and federal government representatives]).

Table 4.6-2 provides information on the size of the Pacific Gas and Electric Company recreational facilities and numbers of visitors.

**Table 4.6-2 Hat Creek 1 and 2 Recreational Facilities**

Name	Type of Facility	Number of Units	All on PG&E Co. Property? If no, list other owner	Visits in 1996
Located North of Cassel Pond				
Cassel	Campground	27a	Yes	6,792
Located at the south end of Baum Lake				
Baum Lake	Day use (parking for 30 cars), fishing access	N/A	Yes	7,776
Located within Hat Creek 1 and 2 Area				
Dispersed Use	Access areas	N/A	Yes	18,330

Source: PG&E Co., 1999a.

a. R. J. Snub. Manager PG&E Co. Hydro Generation. Letter February 12, 1988.

b. R. J. Snub. Manager PG&E Co. Hydro Generation. Letter February 12, 1988.

***Reservoirs.*** There are no large-capacity reservoirs in the Hat Creek 1 and 2 FERC License Lands. However, there are three smaller reservoirs (discussed below) associated with the Hat Creek 1 and 2 license: Hat Creek 1 Reservoir (also known as Cassel Pond), Crystal Lake, and Hat Creek 2 Reservoir (also known as Baum Lake).

***Rivers and Streams.*** Hat Creek is considered an important recreational resource in the Hat Creek 1 and 2 FERC License Lands due to the designation of a three-mile portion of the stream as a wild trout stream. Hat Creek flows over a silt and gravel bottom, and its waters contain calcium carbonates from diatomaceous earth and are dense with aquatic vegetation. The three-mile

designated wild trout section begins at Hat Creek 2 Powerhouse and ends at the fish barrier, at the confluence of Hat Creek and the Pit River. The upper two miles of the designated section are flat water; the lower mile is a continuous series of riffles and runs. For many years, special regulations have restricted fishing to artificials with single barbless hooks (i.e., no live bait is allowed) and required the release of all fish under 18 inches.

Outside of the Hat Creek 1 and 2 license boundaries, fishing access on Hat Creek between Cassel Pond and Hat Creek 2 Powerhouse is limited, but in the designated wild trout area downstream of Hat Creek 2 Powerhouse there are fishing access trails and a parking area. Additional parking areas, trails, and a county park occur downstream of lands within the Hat Creek 1 and 2 license boundary.

Informal vehicle access is provided at the Hat Creek 2 flume intake. The primary recreational opportunities along the flume are shore fishing at the intake and hiking along the flume. The maximum persons at one time on the opening day weekend was 18. On average, 10 persons were observed at the flume. Most of the recreation use at the flume occurs at the intake where informal parking is available (PG&E Co., 1998).

A whitewater boating assessment was conducted for the Hat Creek 1 and 2 bypass reaches. The study concluded that the Hat Creek 1 and 2 bypass reaches do not have much whitewater potential under current conditions because both reaches are less than a mile long, and gradient, channel characteristics, vegetation, and debris combine to create conditions that do not appeal to whitewater boating.

A FERC-approved recreation plan has been prepared for the Hat Creek 1 and 2 license. Recreational facilities at the Hat Creek 1 and 2 FERC License Lands are also regulated by FERC License Articles 17 and 33. These articles require Pacific Gas and Electric Company to provide protection and development of the natural resources and values of Hat Creek 1 and 2 license lands, including outdoor recreation. Article 17 requires the license holder to facilitate public recreation. Pacific Gas and Electric Company allows the public to have Hat Creek 1 and 2 project waters and adjacent lands for recreational purposes, as required by FERC License Article 18.

The FERC-approved recreation plan also indicates that the Hat Creek area is not suitable for high-density recreational uses because of ecological reasons (i.e. bird nesting), water temperatures that are too low for swimming, and lack of suitable areas for motorized boating (Snub, R.J. 1998).

***Minor Recreational Resources.*** Hat Creek 1 Reservoir (Cassel Pond) is a combination of a diversion reservoir, and forebay. The usable storage is 48 acre-feet (af).

Cassel Campground, owned and operated by Pacific Gas and Electric Company, provides 27 developed campsites and overflow camping. At 3,200 feet, Cassel Campground offers shore access and five informal public parking spaces are provided at Cassel Pond for recreationists.

Crystal Lake is managed as a primitive, walk-in, non-boating recreation area, primarily because of its unique resources and sensitivity to overuse. Forty informal parking spaces are provided for sports anglers.

Boulders have been placed along the south shore of the lake along Crystal Lake Hatchery Road to prevent vehicle access. There are four informal Pacific Gas and Electric Company provided vehicle access roads close to Crystal Lake Hatchery Road. In addition, there is one informal vehicle access road, off Cassel-Fall River County Road, to the lake's north shore. Boating on the lake is prohibited by County ordinance.

The 55 acres of swampland bordering the lake are used as a breeding ground by various species of waterfowl, most notably Canada geese and mallard and cinnamon teal ducks. Waterfowl hunting is also popular at Crystal Lake.

Hat Creek 2 Reservoir (Baum Lake) has a usable storage of 629 af, drains an area of 627 square miles, and has a reservoir area of 89 acres. At Baum Lake, Pacific Gas and Electric Company provides lake access, including a 22-space parking lot and a car-top boat launch. Informal vehicle use of approximately 600 feet of shoreline between the developed access site and the outflow culvert to the fish hatchery is provided. Boating, fishing, waterfowl hunting, and wildlife observation are opportunities provided at the lake.

Motorboats, except those powered by electric trolling motors, are prohibited on Baum Lake by a Shasta County ordinance.

The CDFG stocks Baum Lake with brown, eastern brook, and rainbow trout. The FERC Waters also contain populations of non-native game fish (FERC, 1968).

A trail along the lake's west shore runs from the parking lot, across Crystal Lake's dam to Baum Lake's dam. A portion of this trail coincides with the Pacific Crest Trail.

Access is provided on Crystal Lake, Hat Creek 1 Forebay, and the Hat Creek 2 Diversion. A camping area is provided at the Hat Creek 1 Forebay and a boat ramp is provided at Hat Creek No. 2 Diversion (FERC, 1996).

***Watershed Lands Associated with Hat Creek 1 and 2.*** Several parcels of Watershed Lands provide dispersed recreational opportunities such as fishing, hunting, hiking, and bird watching. The Pacific Crest Trail is administered by the US Forest Service, and crosses two watershed parcels that are adjacent to Baum Lake. Pacific Gas and Electric Company and the US Forest Service have an agreement providing that the US Forest Service is responsible for operation and maintenance of the Pacific Crest Trail on these parcels. Actual recreation use of the Pacific Crest Trail in this area is very low in terms of number of users.

The public utilizes another parcel of the Watershed Lands located between Cassel Road and Crystal Lake to obtain vehicular and foot access to Crystal Lake. This use occurs primarily during the waterfowl hunting season (October through January) as well as various times during the spring and summer months for fishing. Though the use is minimal, Pacific Gas and Electric Company has designated specific routes for vehicles across this parcel by placing and maintaining rock barriers in key locations. This measure is designed to protect sensitive environmental resources in the area.

### **Bundle 2: Pit River**

The FERC-licensed projects in this bundle are within Shasta County, and are west of Modoc National Forest, north of Lassen National Forest, and east and south of Shasta Trinity National Forest.

Fall River Mills, McArthur, and Cassel are communities in the area where area recreation users can purchase supplies in the vicinity of the Pit 1 project. Big Bend, Hillcrest and Montgomery Creek are communities in the vicinity of the Pit 3, 4, and 5 project. Big Bend is a community located near the McCloud-Pit project. These communities are partially dependent on spending of recreationists using Pacific Gas and Electric Company provided recreational facilities.

Regional recreational attractions in the area include Lassen National Forest, Mount Shasta Recreation Area, the Shasta-Trinity National Forest, McArthur-Burney Falls State Park, Ahjumawi-Lava Springs State Park, Castle Crags State Park and Pacific Gas and Electric Company recreational facilities discussed elsewhere in this document.

### ***Pit 1 (FERC 2687)***

The Pit 1 project, in northeast Shasta County off Highway 299, is located on the upper Pit River and Fall River northwest of the town of Fall River Mills. There are no formal recreational facilities on the Pit River between its confluence with the Fall River and the Pit 1 Powerhouse. However, Vista Point on Highway 299 provides views of the Pit River Falls.

The Pit 1 project is currently in the process of relicensing. In its relicensing applications, Pacific Gas and Electric Company proposed to remove portions of the McArthur Swamp from the Pit 1 license boundaries and donate the land to the California Waterfowl Association. The applications are pending before FERC and the CPUC.

Pacific Gas and Electric Company does not generally allow dispersed camping within the Pit 1 license boundaries. Pacific Gas and Electric Company occasionally allows the Boy Scouts, church groups, and special interest/non-profit groups to campout on Pacific Gas and Electric Company land east of the Pit River, north of Highway 299. Pacific Gas and Electric Company annually allows the Pit River Pioneers (a.k.a. the Black Powder Shooting Club of Burney) to host a three-day (Memorial Day Weekend) rendezvous and campout on Pacific Gas and Electric Company land east of the Pit River, north of Highway 299. This activity has been conducted on Pacific Gas and

Electric Company land for approximately 15 years. These campouts are subject to conditions described in the license to ensure protection of resources at the Pit 1 project. Pacific Gas and Electric Company is not required by its FERC licenses or other regulatory requirements to allow these campouts to occur, making the practice voluntary and informal.

At the request of CDFG, United States Fish and Wildlife Service (USFWS), and SWRCB, Pacific Gas and Electric Company voluntarily makes a minimum flow release of 200 cubic feet per second from the Pit 1 Powerhouse tailrace into the Pit River at all times. This minimum flow release is not required by current FERC license. However, during unplanned conditions such as mechanical or electrical failures, flows may temporarily drop below 200 cfs. According to Pacific Gas and Electric Company, this practice will be in effect until the new license is issued with defined flow release requirements from the Powerhouse. There are no minimum flow release requirements in the current license for the Powerhouse.

Table 4.6-3 provides information on the size of the Pacific Gas and Electric Company recreational facilities and numbers of visitors.

**Table 4.6-3 Pit 1 Recreational Facilities**

Name	Type of Facility	Number of Units	All on Pacific Gas and Electric Company Property? If no, list other owner	Visits in 1996
Located at Big Lake				
Big Lake	Day use, fishing access	N/A	Yes	7,090
Located within Pit 1 Area				
Dispersed Use	Access areas	N/A		13,652

Source: PG&E Co., 1999a.

**Reservoirs.** There are no key recreational reservoirs associated with the Pit 1 project. Minor reservoirs associated with the Pit 1 license include the Pit 1 Forebay and the Pit 1 Diversion Reservoir (discussed below).

**Rivers and Streams.** Fall River and Pit River are both considered key recreational destinations for the Pit 1 project.

**Fall River.** The Fall River is a State-designated wild trout stream recognized as one of the outstanding wild trout fisheries in the United States. Rainbow trout is the most numerous species caught in the vicinity of the Pit 1 project. A 1986 Pacific Gas and Electric Company angler survey found that 30 percent of the rainbow trout caught in the Pit 1 Project Lands were trophy fish more than 14 inches in length.

The Fall River flows almost entirely within private lands, limiting both shoreline and boat access. Regulation of the waters of the Fall River upstream of the diversion dam, in accordance with the

terms of the Callison Decree is intended to avoid dramatic water level fluctuation that could negatively affect the recreation resources of the upper area of the Pit 1 project. Recreational access in Upper Fall River is primarily through private lodges and launches, which charge fees for boat launch access. Recreational boating is limited to small craft because of the shallow depth and narrow sections of the water body.

Pacific Gas and Electric Company previously provided trailer boating access to Fall River below its confluence with the Tule River, at the Glenburn access area. Denial of access by a private property owner resulted in this access being closed in 1968. CDFG subsequently provided a car-top boat launch. This access was closed in 1996 due to the high cost of leased land and low use of the facility.

The only access to the Ahjumawi-Lava Spring State Park, an undeveloped 5,890 acres, is over Project Land from a boat launch (known as Rat Farm) on the south side of Horr Pond. There are no formal recreational facilities on Fall River downstream of the forebay or on Pit River between its confluence with Fall River and the Powerhouse.

***Pit River.*** Recreational opportunities along the Pit River from the confluence with the Fall River downstream to Lake Britton include whitewater boating, drift boating/angling, canoeing, camping, hiking, picnicking, and fishing. Recreational access is primarily outside of the Pit 1 license boundary and includes informal boating access sites.

The lower section of Pit River canyon can be accessed from the FERC Licensed Area at the Pit 1 Powerhouse and provides shoreline fishing and hiking opportunities.

Pacific Gas and Electric Company conducted a Whitewater Boating Study in 1996 to assess the whitewater boating opportunities in the Pit River from Cassel Bridge (600 feet upstream of the Fall River confluence) to about 2.4 miles downstream of the State Highway 299 Bridge (the potential take-out location on Lake Britton). The study classified two sections for whitewater boating, based on access, run configuration, streamflow regime, and river channel and hydraulic characteristics: the Canyon Section and the 299 Section.

The Canyon Section is a 6.8-mile stretch from Cassel Bridge to the Pit 1 tailrace, and includes informal put-in access at Cassel Bridge and Big Eddy Estates subdivision, and informal take-out access areas at several locations. The study further divided this section into three reaches: Big Eddy Reach, the Ledges Reach, and Canyon Whitewater Reach. Most use of the Canyon Section occurs in June, during the main spring run-off period. By July, lack of sufficient flows render the Canyon Section unusable for whitewater boating.

The 299 Section (Pit 1 Powerhouse to the Highway 299 Bridge) has various river routes that give limited access to anglers in waters that hold big fish. The section of the river is large, wide and swift, with many good riffles, but offers rough wading due to water fluctuations and lots of rocks.

From the Highway 299 Bridge to Lake Britton, fishing access on Pit River is good, although it requires some walking.

***Minor Recreational Resources.*** Pit No. 1 Forebay (Fall River Pond) has a storage capacity of 2,800 af, and drains an area of 260 square miles. The reservoir area is 225 acres. It is known locally as the Fall River Lake. Two single-lane, concrete boat ramps on the forebay's west shore are the Pit 1 project's main recreational facilities. An unimproved dirt boat launch ramp also exists along this shore. Year-round public access has been provided to the forebay's west shore from Long Street in Fall River Mills near the dam, and from Glenburn Road one mile west of Fall River Mills near the intake structure. Two year-round public access points are available to the forebay's east and north shores via the road leading to the County airport. The primary recreation activities at the forebay are swimming, shore fishing, and water skiing. Pit 1 Forebay is not a destination recreation area that attracts a significant number of out-of-town visitors.

Fall River Pond, immediately downstream from the forebay dam spillway channel, is also used for recreation, although no formal recreational facilities exist at this site. Shore fishing for largemouth bass is the primary recreational use of Fall River Pond. A pedestrian access bridge across the Pit 1 tailrace is also used for recreation.

The Fall River Pond is a placid water body several hundred feet wide and just over one-half mile long located within the community of Fall River Mills. A stand of emergent wetland vegetation grows along the edges of the pond, which is popular with local residents who fish from its banks between the forebay dam and the Highway 299 Bridge, off the Bridge Street Bridge, or the pond's weir. Pacific Gas and Electric Company has committed to release flushing flows from the Pit 1 Dam two to three times a year to flush the vegetation out of the Fall River Pond. Pacific Gas and Electric Company states that this practice will likely be included as a requirement in the new license for the Pit 1 project.

Pit 1 Diversion Reservoir has a storage capacity of 50 af, and drains an area of 676 square miles. The reservoir area is nine acres. In the area of the Pit 1 Powerhouse, shore fishing is the most popular recreational activity. Camping, hiking, wildlife viewing and swimming are less popular activities.

***Watershed Lands Associated with Pit 1.*** Because of limited access and steep terrain, recreational opportunities on Watershed Lands associated with the Pit 1 license are limited. The only exception is a parcel located at the west end of the Pit 1 license that provides pedestrian access to Fall River. This parcel is located on Dana Road, near Rick's Fishing Lodge. Although there are several other public access points to this portion of Fall River, this parcel is one of the few where free public access is possible. Even though access across this parcel is free, use is fairly low, consisting mostly of access for shoreline fishing or entering the river using a float tube. Boat access to Fall River is possible at several other privately owned and operated facilities in the area.

**Pit 3, 4, and 5 (FERC 0233)**

The Pit 3, 4, and 5 project occupies a volcanic region in the Cascade Mountains of Northeastern California in a sparsely populated zone about 30 miles northeast of Redding, California. Access is via State Routes 299 or 89. Moderate to steep slopes and heavy timber growth characterize the area. Lassen Volcanic National Park is located about 10 miles south of the upper reservoir, Lake Britton (see Figure 4.6-1). [Note: Figures for the Recreation Section are found at the end of the Section.] McArthur-Burney Falls State Memorial Park occupies FERC-licensed lands and Watershed Lands along the southern shore of Lake Britton.

Table 4.6-4 provides information on the size of the recreational facilities and numbers of visitors.

**Table 4.6-4 Pit 3, 4, and 5 Recreational Facilities**

Name	Type of Facility	Number of Units	All on PG&E Co. Property? If no, list other owner	Visits in 1996	Comments
Located at Lake Britton Reservoir					
McArthur-Burney Falls Memorial State Park	Campground, boat launching ramp	118 camping, 52 picnic	Partly on USFS Land and partly on PG&E Co. land		Operated by the State of California
Northshore	Campground	30	Yes	6,316	Roads accessing this facility are all, at least partially, under USFS ownership and outside of license boundary.
Dusty Group Camp	Campground	8	No, USFS	2,900	Constructed by PG&E Co. on USFS land by Federal mandate. Facilities are owned by USFS and operated by PG&E Co. under an operating agreement by PG&E Co. as required by the Revised Exhibit R, dated 8/87
Jamo Point Boat Launch	Day use, boat launch ramp and fishing access	N/A	Yes	8,466	Roads accessing this facility are all, at least partially, under USFS ownership and outside of license boundary.
Pines Picnic Area	Day use, picnic area	10	Yes	3,606	Roads accessing this facility are all, at least partially, under USFS ownership and located outside of the license boundary.
Located within the Pit 3, 4, and 5 Area					
Dispersed Use	Access areas	N/A		9,629	

Source: PG&E Co., 1999a.

**Reservoirs.** The most heavily used reservoir associated with the Pit 3, 4, and 5 license is Lake Britton (Pit 3 Diversion). Minor reservoirs in this license include the Pit 4 Forebay, Pit 5 Diversion, and Pit 5 Open Conduit.

The Pit 3 reservoir, more commonly known as Lake Britton, has a storage capacity of 34,600 af, and drains an area of 4,700 square miles. The reservoir area is 1,265 acres. Lake Britton has a maximum water surface elevation of 2,738 feet.

Lake Britton offers multiple recreation activities. Shoreline as well as powered boat fishing, seasonal waterfowl hunting, water skiing, canoeing, swimming, and sailing comprise the full spectrum of water-oriented recreation. Public access to the lake is available at various locations and by various means. Boat launching is available at two formally developed locations: Jamo Point, owned by Pacific Gas and Electric Company, and at McArthur-Burney Falls State Park. Launching fees are imposed seasonally at each location and courtesy docks as well as fishing platforms are provided for public use.

Pacific Gas and Electric Company has instituted a program to restrict vehicles in the areas of resource sensitivity. Therefore, much of the access around the lake is limited to foot or horseback travel. Parking has been provided at strategic locations in these areas of closure in an effort to ensure reasonable and proximate public access by means other than vehicles.

All Pacific Gas and Electric Company developed public use facilities for Pit 3, 4, and 5 are located at Lake Britton. North Shore Campground is a 30-unit development that offers fishing and swimming access, boat launch facilities, and water skiing. It is the largest Pacific Gas and Electric Company campground within the Pit 3, 4, and 5 license boundary. The campsites are located on the north shore of Lake Britton at the lower end of the lake across from the McArthur-Burney Falls Memorial State Park. The campground was completely rehabilitated in 1993 and now includes handicapped accessible picnic tables and food lockers, fire rings, vehicular parking, paved thoroughfares and spurs, sanitary facilities, potable water, and direct lakeshore frontage.

Dusty Campground is a smaller, more rustic campground centrally located along the north shore of Lake Britton. It was also rehabilitated in 1993, and is situated on USFS-owned land under an agreement that provides for Pacific Gas and Electric Company's operation and maintenance through the term of the present FERC license. There are seven campsites at Dusty Campground. Two accommodate groups not to exceed 25 persons, and five are family campsites. The campground was developed cooperatively with the USFS and a public user group to provide a campground where amenities are minimal and aesthetics mimic a natural (or pre-development) condition. The facilities at Dusty Campground include fire rings, sanitary facilities, non-paved thoroughfares and campground spurs, and direct lakeshore access. The Dusty Campground will not be sold as part of the project.

The Pines Picnic Area is located along the north shore of the lake and is closed off-season. Amenities include 10 picnic tables, barbecue grills, sanitary facilities, paved parking, and lakeshore access for fishing and swimming.

Jamo Boat Launch is located adjacent to and upstream of the Pines Picnic Area on Pacific Gas and Electric Company land. It offers paved parking with a concrete boat launch, a courtesy dock for tie-up and launching ease, and a large, aluminum fishing platform. Both the courtesy dock and the fishing platform are accessible to the physically impaired. Sanitary facilities are also available. During the recreation season, a fee is charged for launching boats. During the off-season, the area is managed on a dawn to dusk basis with no charge for boat launching.

Upper Lake Britton Public Access is provided seasonally for recreational opportunities in non-developed areas along the northerly shoreline of Lake Britton and along Pit River and its major tributary, Hat Creek. The area is accessible by boat from lower Lake Britton and by three access roads, all running north of Highway 299. A maintained cinder road, one-quarter mile east of the State Highway 299 Bridge over the Pit River leads to three unpaved parking enclosures created for fishing, hunting, and hiking opportunities. The most downstream parking site provides an unimproved car-top boat launch as well.

Lake Britton PSEA Camp is a private resort complex operated by the PSEA on Pacific Gas and Electric Company land. It provides eight fully complimented lodging units for Pacific Gas and Electric Company's employees, retirees, families, and friends. Activities include fishing, boating, water skiing, swimming, and hiking. Rowboats are available for use by those staying at the camp and mooring facilities are provided for tying up privately owned boats. The camp is normally open from the last weekend in April through mid-October.

The McArthur-Burney Falls Memorial State Park has 118 camping units, 52 picnic units, a two-lane boat launching ramp, some walk-in campsites (located along the Pacific Crest Trail), and other facilities at the south shore of Lake Britton (the Park is only partially located on Pit 3, 4, and 5 FERC-Licensed Lands with the remainder on State Park land).

Pacific Gas and Electric Company currently maintains Lake Britton above the minimum reservoir level during the recreation season to enhance recreational use of State Parks. This practice is not formally required by any regulatory requirements applicable to the facilities.

A review of monthly lake volume during June, July, and August, from June 1990 to June 2000 was conducted. This period represents the peak recreation period between Memorial Day and Labor Day. The average lake volume at Lake Britton during this period was 36,604 af. The minimum lake volume occurred in June of 1993 and was 29,087 af. The second lowest lake volume occurred in July 1991 and was 32,209 af. The maximum lake volume was 40,371 af and occurred in July 1994.

The lowest Lake Britton volume of 29,087 af and the second lowest volume of 32,209 af recorded in the last ten years translates into lake surface elevations of 2,747 feet Above Sea Level (ASL) and 2,750 feet ASL, respectively. The maximum lake volume recorded in the last 10 years of 40,371 af translates into lake surface elevations of 2,756 feet ASL.

To date, lake levels at Lake Britton have not been drawn down low enough between the Memorial Day weekend to Labor Day weekend to affect the operational capacity of boat launching ramps and boat docks. In 1990 documentation, State Park facilities on Pit 3, 4, and 5 Project Lands begin to flood at a water surface elevation of 2,756.7 feet ASL. The FERC license for the Pit 3, 4, and 5 project specifies a maximum water surface elevation of 2,757 feet ASL.

Rangers at McArthur-Burney Falls Memorial State Park indicate that no problems had been experienced with lake levels falling below a point where the boat ramps were operable (McArthur-Burney Falls Memorial State Park, 2000). When the lake does experience lower levels, the exposed Jamo Point is signed and buoyed off to prevent boats from running aground.

***Rivers and Streams.*** Pit River is a key recreational resource for the Pit 3, 4, and 5 license. The primary recreational activity in Pit River canyon is fishing and late season deer and bear hunting. Some whitewater rafting and tubing does occur, but to an extent that defines it as minimal use. Minimal use results from undependable flows, poor access, and lots of portage due to rocky, shallow stretches. Habitat for trout has improved on the Pit River since about 1995 due to increased flows released from the Pit 3 dam facility. The area between the Pit 3 dam and the Pit 5 Powerhouse constitutes the length of the Pit River canyon through the Pit 3, 4, and 5 Project Lands. It is generally categorized by steep terrain with occasional flats where fishing opportunities present themselves. The canyon is segmented into three stretches of river runs (reaches). The Pit 3 reach extends from the Pit 3 dam to the Pit 4 dam; the Pit 4 reach extends from the Pit 4 dam to the Pit 5 dam; and the remaining run of the river to the end of the Pit 3, 4 and 5 license's boundary (Pit 5 Powerhouse) is known as the Pit 5 reach.

Along the Pit River in this area, recreational opportunities are accessed by dirt or gravel pull out areas or by roads leading directly to the river. The River from the Pit 3 dam to the Pit 5 Powerhouse is relatively isolated.

The Pit 3 reach designated wild trout area is a stretch of the Pit River below the Pit 3 dam that has been set aside by CDFG to propagate the reintroduction of a premier wild trout fishery. Essentially the CDFG uses a catch and release program. The most popular recreational activity in this area is fishing. The area has trails accessible from multiple pull out and parking areas along the road to the Pit 3 Powerhouse. The first three miles below the dam are steep and only for the hardy (i.e. steep slopes and rocky bottom makes wading difficult).

From Lake Britton downstream to the Pit 3 Powerhouse (approximately five miles) is the only special regulation fishing water in the Pit River system. The special regulations specify that the fishing limit is two fish over 18 inches long. Fly anglers fish this reach of the Pit River more than any other reach of the Pit River (CSU Chico, 2000).

The Pacific Crest Trail crosses the Pit River on a road on top of the Pit 3 dam. There is no formal easement over the dam for the Pacific Crest Trail users to use the road on the dam.

Camp Shasta is a private resort operated by the PSEA on the Pit 3 reach. It lacks riverfront or lakefront access, but a swimming pool is available. The eight fully complimented lodging units are available to Pacific Gas and Electric Company employees, retirees, families, and friends. It is located off the Pit 3 Road just west of the Pit 3 dam.

The Pit 4 reach is generally accessible to anglers at various pull out locations along the first few miles of River Road between the Pit 3 Powerhouse and the Pit 5 dam. Thereafter, the road meanders away from the river and steep conditions occur for a number of miles. When the road nears the Pit 4 Powerhouse and the downstream Pit 5 reservoir, a gentler slope again allows some river access. Aside from various pullouts, there are no formal recreation developments for the entire length of the Pit 4 reach. Kayakers occasionally use the Pit 4 reach of the river when flows exceed 500 cfs; however, this condition is rare (FERC, 1999a).

The Pit 5 reach, from the Pit 5 dam to the Pit 5 Powerhouse, offers recreational opportunities limited to fishing, seasonal hunting, and occasional rafting or tubing. The Tunnel reservoir (Pit 5 Open Conduit Reservoir) is a small body of water located near Camp Pit, but its value as a fishery or reservoir is precluded due to rapid water surface fluctuations that create hazardous conditions and because of the presence of endangered wildlife species.

Private campgrounds are available at Camp Pit, operated for Pacific Gas and Electric Company employees, retirees, and their families by the PSEA. It has 17 lodging units and is located along the Hagen Flat Road approximately two miles from Big Bend. A swimming pool and close proximity to Pit River for fishing, and Shasta-Trinity National Forest for hunting, are among the amenities offered.

Management to protect the threatened southern bald eagle may preclude additional recreational camping facilities within the Pit 3, 4, and 5 license boundary, and relicensing studies are expected to review additional recreation needs.

***Minor Recreational Resources.*** Pit 4 Forebay has a storage capacity of 2,000 af and has a surface area of 106 acres. It is a small body of water not conducive or open to boating. It is essentially a low gradient broadened area of the river that serves as a storage forebay behind the dam. No developed recreational facilities are located at this forebay. The Pit 4 reservoir, with its usually placid waters, is a favorite unimproved picnic area and fishing spot for many visitors in the canyon.

Pit 5 Diversion has a storage capacity of 390 af, and a surface area of 32 acres. It is a small body of water not conducive or open to boating. It is essentially a low gradient broadened area of the river that serves as a storage forebay behind the dam. There are no developed recreational facilities associated with this diversion.

***Watershed Lands Associated with Pit 3, 4, and 5.*** The Watershed Lands associated with the Pit 3, 4 and 5 license provide for numerous recreational opportunities. Many of these opportunities are

centered on several parcels located east of Lake Britton, south of Highway 299, along the Pit River. Pacific Gas and Electric Company maintains an access road and parking area that provides access to Hat Creek, just below the Hat 2 Powerhouse. This is a popular fishing spot because it is located on the “Wild Trout Section” between the Hat 2 Powerhouse and Lake Britton. This facility is open from the beginning of the fishing season (the last Saturday in April) through November 15. There are several other unimproved dirt roads across these parcels that provide access to various points along the Pit River between Pit 1 Powerhouse and Lake Britton.

At the west end of Lake Britton, the “Pit Reach Road” begins and runs westerly and adjacent to the Pit River, and terminates in the community of Big Bend. In accordance with a FERC license condition, Pacific Gas and Electric Company constructed several turn out parking areas along this road between the Lake Britton dam and Pit 3 Powerhouse. These parking areas provide better river access on this portion of the Pit River. One of the turnouts is located on a Watershed Lands parcel along this road. The Pacific Crest Trail also crosses this parcel.

Toward the westerly end of the Pit 3, 4 and 5 Project Lands, the Pit River crosses several parcels of Watershed Lands. Anglers use one particular parcel located between the Pit 5 Open Conduit Reservoir and the Pit 5 Intake Dam as an access point to this area of the Pit River. Anglers park near the Pit 5 Open Conduit Reservoir or in the vicinity of the PSEA Camp Pit and walk to various points along the river. This use appears to be low (PG&E Co., 2000c).

Certain property owned by Pacific Gas and Electric Company near Burney Falls, which is located within the license boundary of Pit 3, 4, and 5 is proposed for donation to the CDPR. Authority to complete the transfer is pending before FERC and the CPUC. A day use area, Big Lake, provides access to fishing and swimming, and a car-top boat launch is provided at McArthur Swamp.

#### ***McCloud-Pit (FERC 2106)***

Recreation activities in the McCloud-Pit license include camping, fishing, boating, hiking, picnicking, sightseeing, and hunting. The McCloud-Pit license is located southeast of Mt. Shasta east of Highway 5, and south of Highway 89 along USFS 11. Table 4.6-5 provides information on the size of the Pacific Gas and Electric Company recreational facilities and numbers of visitors.

**Table 4.6-5 McCloud-Pit License Recreational Facilities**

Name	Type of Facility	Number of Units	All on PG&E Co. Property? If no, list other owner	Visits in 1996
Located at Iron Canyon Reservoir				
Hawkins Landing	Campground and boat ramp	10	No, USFS	696
Located within McCloud Pit Area				
Dispersed Use	Access areas	N/A		8,202

Source: PG&E Co., 1999a.

**Reservoirs.** The key reservoir associated with the McCloud-Pit project is the McCloud Reservoir. Minor reservoirs include Iron Canyon Reservoir, Pit 6 Forebay, Pit 7 Forebay, and Pit 7 Afterbay.

The storage capacity of the McCloud Reservoir is 35,300 af. It drains an area of 380 square miles, and has a reservoir area of 520 acres. Pacific Gas and Electric Company built the McCloud Reservoir in the 1960s to divert water to the Pit River for hydroelectric power. It has excellent public access. Trout fishing is excellent and wildlife viewing (such as bald eagles) is common. In the mountains above the McCloud Reservoir are massive limestone deposits, which follow the river all the way to Shasta Lake creating the famous Shasta Caverns.

A review of McCloud Reservoir levels during the peak recreation period between Labor Day and Memorial Day identified average, high and low lake levels in the past 10 years. The low level was 2,650 feet above sea level. The average level was 2,667 feet above sea level and the high was 2,679 feet above sea level.

The McCloud Reservoir is a popular destination for fishing, swimming, and boating. Pacific Gas and Electric Company provides a boat ramp on the McCloud Reservoir.

**Rivers and Streams.** The McCloud River is considered a key recreation attraction for the McCloud-Pit project. The McCloud River is a popular destination for fishing enthusiasts. Canyons, white water, and pools characterize the McCloud River. Historically, salmon and steelhead ran all the way to Middle Falls until the completion of Shasta Dam in 1945.

The McCloud River is a popular fishery in Northern California. The McCloud River Preserve, owned by the private non-profit Nature Conservancy and including over 2,000 acres of land surrounding a six-mile stretch of the river, together with private fishing clubs, such as the McCloud River Club and the Bollibokka Club, have prevented development in this area.

Beginning from a series of springs near Bartle Gap, the river flows eastward at the foot of Mt. Shasta, a volcano in the Cascade Range. Fed by several tributaries, the river passes through Algoma Campground and grows until it reaches Cattle Camp, a popular fishing hole.

The river then meanders through Bigelow Meadows before it reaches Lakin Dam, a small reservoir created as an alternative water supply for the town of McCloud. The area around the McCloud River Falls is a popular tourist attraction along the McCloud River. Formerly under the ownership of Champion International (a logging corporation), it was acquired by the USFS in a land swap agreement in 1989. This section of the river includes three waterfalls, the Upper, Middle, and Lower Falls. The river enters a canyon through an old basaltic lava flow and flows over three parapets, creating an array of deep holes, rocks, waterfalls, and scenery, which attracts tourists.

Upper Falls is a cascade surrounded by cliffs as high as 100 feet. About one-quarter mile downstream is Middle Falls, the highest of the McCloud River falls. Middle Falls can only be reached via a trail from Fowlers Campground, about a mile downstream. Fowlers Campground is

run by the USFS. It is a well-used campground with 39 campsites and access for fishing and swimming. It is not far from Lower Falls. Lower Falls is the smallest of the McCloud River Falls. Only about ten feet high, it is popular among swimmers and anglers. Two other USFS campgrounds located in the general vicinity of the falls are Algoma, with six campsites, and Cattle Camp, with 20 campsites. Both Algoma and Cattle Camp facilities provide access to the McCloud River for swimming and fishing (Simons, 1997).

No flow-altering facilities are installed above the McCloud Dam at the McCloud Reservoir. Therefore, the amount of water flowing through the Falls of the McCloud River is not affected by hydroelectric power generation.

Public access to the lower McCloud River below the McCloud Reservoir dam is very limited and is primarily open to hikers and those who are willing to go out of their way. Special fishing regulations require that only artificial baits and lures with single barbless hooks can be used. The fish on this section of river are primarily native Shasta rainbow and brown trout. There are no hatchery trout and the Lower McCloud produces large fish. The Pacific Crest Trail follows the river for a two-mile length between Ash Camp, just below the McCloud Reservoir, to Ah-Di-Na Campground.

Along this section of river are a canyon, white-water rapids, and deep fishing holes. Two fish per day is the limit. Otters, bald eagles, deer, black bears, and mountain lions inhabit the forests surrounding this river reach.

The USFS acquired Ah-Di-Na campground, formerly a private fishing and hunting club, in 1965 and built a public campground. It contains 16 units and includes a spring fed water system. The USFS has been restoring the historic remains of Ah-Di-Na. They have built an interpretive trail and reconstructed an old ranger cabin.

About a mile downstream from Ah-Di-Na campground is the end of the established road. Here begins the McCloud River Preserve, owned and operated by the Nature Conservancy. This section of the river is a protected nature preserve for native plants and animals. Strict regulations regarding fishing mandates that all fish caught below the confluence of Ladybug Creek must be immediately released.

Dolly Varden is a native species in this river reach. This section of the river is one of their southernmost habitats. Their numbers have dwindled recently and all Dolly Varden caught on the McCloud River must be immediately released.

Below the McCloud River Preserve is the McCloud River Club, a private fishing club created around the turn of the century. This section of the river all the way down to Shasta Lake is completely closed to the public. At the confluence of Squaw Valley Creek, another private fishing club, the Bollibokka Club, begins.

Wyntoon is a development built by the Hearst family and is often described as the little San Simeon. The Hearst property begins below Lower Falls and extends all the way to the McCloud Reservoir. It is built alongside the river. It is not open to the public although private whitewater rafters who float down from Lower Falls can see it.

The McCloud River was studied by the state of California for being designated wild and scenic. Much controversy has ensued and the idea has been most heavily attacked by the private landowners along the river. Nevertheless, the California state legislature passed a resolution protecting the river from further construction of dams.

**Minor Recreational Resources.** Iron Canyon Reservoir (see Figure 4.6-2) has a storage capacity of 24,300 af. It drains an area of 11.2 square miles, and has a maximum reservoir area of 510 acres. Iron Canyon Reservoir is the forebay for James B. Black Powerhouse, and has historically been subject to large and frequent fluctuations in water surface elevation purportedly because of generating requirements. Annual fluctuation of 70 feet is normal for this reservoir. From 1967 through 1972, water surface elevations on Iron Canyon Reservoir fluctuated by 72 feet. At the higher elevation (2662 feet), the lake surface area was 485 acres and 108 acres when the level was at the minimum (PG&E Co., 1972). There are several characteristics of the Iron Canyon Reservoir that preclude heavy recreation use. These include that the lake has mainly shallow narrow bays, which restrict power boating and water skiing, low water temperature for swimming, steep banks unsuitable for development, and access from dirt roads (PG&E Co., 1972). Users at Iron Canyon are mainly anglers, hunters, or nature lovers who prefer isolation.

Fishing and hunting are two of the principal recreation activities at and around the reservoir. Rainbow trout, found naturally in most streams throughout the area, exist as natural or planted populations in Iron Canyon Reservoir. Pacific Gas and Electric Company owns and operates the 10-unit Hawkins Landing Campground, on the northeast shore of the reservoir. Hawkins Landing offers fishing and swimming access, and Pacific Gas and Electric Company has provided a boat ramp at the campground.

The Shasta-Trinity National Forest provides Deadlun Campground on the Iron Canyon Reservoir. This campground has 30 campsites and provides swimming and fishing access.

Also located within the McCloud-Pit license boundaries are a campground with undesignated sites and an unofficial boat launch, not operated by Pacific Gas and Electric Company

During the fishing season, Pacific Gas and Electric Company maintains the level of the Iron Canyon Reservoir to make the Hawkins Landing boat ramp operational. Pacific Gas and Electric Company conducts this practice in a way that avoids reservoir spills. This practice is conducted informally, and is not specifically required under its FERC license or other regulatory requirements.

Pit 6 Forebay has a storage capacity of 15,700 af. It drains an area of 5,020 square miles, and has a reservoir area of 265 acres. No formal recreational facilities are associated with the Pit 6 Forebay. There is no data to indicate it's being used for dispersed recreation.

The Pit 7 Forebay has a storage capacity of 34,000 af, and drains an area of 5,170 square miles. The reservoir area for the Pit 7 Forebay is 470 acres. No formal recreational facilities are associated with the Pit 7 Forebay or the Pit 7 Afterbay. There is no data to indicate it's being used for dispersed recreation.

***Watershed Lands Associated with McCloud-Pit.*** There are few recreational opportunities on the Watershed Lands associated with McCloud-Pit project. Most of the Pit River in this area is inaccessible due to the steep canyon of the river. Watershed Lands in proximity to the McCloud-Pit license are heavily forested and may be used by local deer hunters. The majority of the Watershed Lands associated with the McCloud-Pit license abut private lands.

### **Bundle 3: Kilarc-Cow Creek**

The Kilarc-Cow Creek Bundle includes one FERC-licensed project, the Kilarc-Cow Creek project, located in Shasta County near the rural communities of Whitmore and Millville. The Kilarc Powerhouse can be reached from Whitmore using Whitmore Road and Ponderosa Way. Kilarc Forebay is accessible from Ponderosa Way on a 3.5-mile dirt road. A four-wheel drive vehicle is required on this access road during the rainy season.

There are many nearby local, state and national recreational facilities. Lassen Volcanic National Park, Whiskeytown National Recreation Area, Shasta National Recreation Area, McArthur-Burney Falls Memorial State Park, and Castle Crags State Park are among the larger and better-known recreation attractions in the Kilarc-Cow Creek project. The FERC-required recreation plan indicates that the Kilarc-Cow Creek Project Lands attract primarily Shasta County residents as recreation users (PG&E Co., 1975).

#### ***Kilarc-Cow Creek (FERC 0606)***

Fishing and picnicking are the main forms of recreational use in the Kilarc-Cow Creek Project Lands.

Table 4.6-6 provides information on the size of the Pacific Gas and Electric Company recreational facilities and numbers of visitors.

**Table 4.6-6 Kilarc-Cow Creek Recreational Facilities**

Name	Type of Facility	Number of Units	All on PG&E Co. Property? If no, list other owner	Visits in 1996
Located just north of Kilarc Reservoir				
Kilarc Reservoir	Day use, picnic areas, and fishing access	N/A	Yes	750
Located within Bundle Area				
Dispersed Use	Access areas	N/A		250

Source: PG&E Co., 1999a.

**Reservoirs.** There are no important recreational reservoirs associated with the Kilarc-Cow Creek license. Minor reservoirs are Kilarc Forebay and Cow Creek Forebay.

**Rivers and Streams.** There are no important recreational resources located on the streams of the Kilarc-Cow Creek project. Minor recreational resources include Cow Creek and canals.

**Minor Recreational Resources.** Kilarc Reservoir impounds water diverted from Cow Creek for use at Kilarc Powerhouse and has a storage capacity of 30.4 af and a surface area of 4.5 acres. The only developed recreational facility associated with the Kilarc-Cow Creek license consists of an eight-family-unit picnic area and an eight-table group picnic area on the north side of Kilarc Reservoir. While boating and swimming activities are prohibited in the forebay by Shasta County Ordinance, the forebay supports a native trout fishery, which is supplemented by plantings by CDFG. Parking facilities and access are available at the Kilarc Forebay.

Cow Creek Forebay impounds water for use at the Cow Creek Powerhouse and has a storage capacity of 5.4 af. There are no developed recreational facilities at the Cow Creek Forebay. Pacific Gas and Electric Company allows public use of the employee parking area at Cow Creek Powerhouse. Cow Creek Forebay offers limited attractiveness and capacity, as well as poor access, and thus is used only sporadically by anglers.

Cow Creek currently supports small runs of threatened spring-run Chinook salmon and steelhead. In the vicinity of the Kilarc-Cow Creek project, there are two State Forest owned and operated campgrounds (i.e., these facilities are not on license land). Old Cow Creek Meadows campground provides three tent/trailer camping spaces and is located 15 miles east of the town of Whitmore. Fourteen miles east of Whitmore is the South Cow Creek Meadows campground, which provides two camping spaces.

Kilarc-Cow Creek project canals receive infrequent recreation use. The primary recreation use on the canals is drift line fishing. The canals are not stocked with fish and the FERC-required recreation plan does not anticipate increased recreational facilities in this area (PG&E Co., 1975).

***Watershed Lands Associated with Kilarc-Cow Creek.*** None of the Watershed Lands associated with the Kilarc-Cow Creek license provide formal or informal recreational opportunities, as all lands surrounding Pacific Gas and Electric Company's Watershed Lands are privately owned precluding public access to these lands.

#### **Bundle 4: Battle Creek**

The Battle Creek Bundle contains one FERC-licensed project, the Battle Creek project, located in Shasta and Tehama Counties, straddling the county line between these jurisdictions. The Battle Creek license is located south of Highway 44 and north of Highway 36 west of Highway 89, 35 miles east of Redding at the head of California's Central Valley. The Battle Creek license contributes to the recreation resources of the Shasta-Cascade Wonderland, a popular year-round region noted for its outstanding natural resources, including timber, fish and wildlife, and outdoor recreation. It is located near the communities of Shingletown and Manton where local shopping opportunities are provided for area users. Anderson and Red Bluff are communities located to the west.

Portions of Battle Creek, including its north and south forks, and approximately 40 miles of canals and five reservoirs (see Figure 4.6-3) constitute the principal recreation-related elements of the Battle Creek project.

Aside from the facilities developed under Pacific Gas and Electric Company's Recreation Program, there are five improved recreation areas within the region: Lassen Volcanic National Park, Thousand Lakes Wilderness, Shingletown Rest Area and federal and state fish hatcheries at Coleman and Darrah Springs.

The largest and most popular recreational area is Lassen Volcanic National Park. Administered by the National Park Service, Lassen Park annually attracts tens of thousands of visitors who enjoy visiting the historical and geological museum, using the camping facilities, hiking the extensive trail system to view areas that are still exhibiting volcanic activity, and cross-country skiing in the winter.

Thousand Lakes Wilderness, four miles north of North Battle Creek Reservoir, contains over 16,000 acres of primitive country characterized by small, crystal clear mountain lakes. The USFS maintains the area in its natural state to give users a true wilderness experience.

Volcanic and glacial formations, rocky ravines, mountain slopes, open meadows, and stands of lodgepole pine and red fir define the wilderness. It is dominated by 8,677 foot Crater Peak, the highest point on the Lassen National Forest, and is a reminder of the glacial action that eroded Thousand Lakes Volcano and created the many small lakes and ponds scattered throughout. The lowest point in the wilderness occurs at the base of the volcano at 5,546 feet. The seven major lakes that lie within the wilderness valley contain trout. Several species of wildlife make their

home in the wilderness: black-tailed deer, black bear, pika, pine marten, northern goshawk, spotted owl, pileated woodpecker, and Clark's nutcracker. Elk have been known to visit occasionally.

Shingletown Rest Area is a cooperative effort between Shasta Forests Company, Pacific Gas and Electric Company, and the California Department of Transportation (Caltrans). This roadside rest area is in the vicinity of Millseat Creek, two miles east of Shingletown. Al Smith Canal, where it joins Millseat Creek, provides fishing for visitors to the roadside rest area.

Darrah Springs State Fish Hatchery is located eight miles west of the town of Manton via Wildcat Road. It provides public education on fish cultural techniques and related research. It offers free fishing days for local children on an annual basis. It also provides limited picnicking facilities for visitors.

The Federal fish hatchery, Coleman National Fish Hatchery, is located four miles east of Balls Ferry Bridge on the Sacramento River. It also offers educational programs and limited picnicking for the public.

**Battle Creek (FERC 1121)**

Table 4.6-7 provides information on the size of the Pacific Gas and Electric Company recreational facilities and numbers of visitors.

**Table 4.6-7 Battle Creek Recreational Facilities**

Name	Type of Facility	Number of Units	All on PG&E Co. Property? If no, list other owner	Visits in 1996
North Battle Creek	Campground	15	no, USFS	1,468
Lake Macumber	Campground and day use	12	yes	1,016
Lake Grace	Day use, picnic area	10	yes	12,023
Lake Nora	Day use, picnic area	10	yes	3,986
Bundle Area Dispersed Use	Access areas	N/A		7,527

Source: PG&E Co., 1999a.

**Reservoirs.** There are no important recreational reservoirs associated with the Battle Creek license. Minor reservoirs include the North Battle Creek Reservoir, the Macumber Reservoir, Lake Grace, Lake Nora, and the Coleman Forebay. Nearly 28 miles separate the North Battle Creek Reservoir and Coleman Forebay, the Battle Creek license’s uppermost and lowermost storage facilities.

**Rivers and Streams.** There are no key recreational destination streams associated with the Battle Creek license. The minor recreational stream resource is North Battle Creek.

***Minor Recreational Resources.***

**North Battle Creek Reservoir.** North Battle Creek Reservoir has a storage capacity of 1,090 af, and drains an area of 6.4 square miles. The reservoir has a surface area of 80 acres.

North Battle Creek Campground has 10 campsites, and five walk-in campsites. At 5,600 feet, the campground offers access for swimming and fishing, including a car-top boat launch. Boats powered by electric motors only are allowed on the lake .

Five of the campsites at the North Battle Creek Campground are at least partially on Lassen National Forest land. This is not documented in any formal agreement or permit. The USFS has allowed Pacific Gas and Electric Company to maintain the campsites. Pacific Gas and Electric Company does not pay the USFS for this use. The USFS would like to continue the existing situation and would like the arrangement to be formalized in an agreement.

A March 2000 application by Pacific Gas and Electric Company requests FERC's authorization to amend Article 33 (f) of the existing license for FERC 1121 as follows:

Flashboards are needed to raise the existing North Battle Creek Reservoir to its full capacity, 1,039-acre-feet, for the recreation season. The proposed amendment to article 33(f) would allow Pacific Gas and Electric Company to delay up to one month (from June 1 to July 1) the placement of flashboards at North Battle Creek dam when late runoff or heavy snow pack precludes road access to the dam by truck. During such years, Pacific Gas and Electric Company would install flashboards as soon as roads are passable by truck, and would notify the Forest Supervisor of Lassen National Forest.

**Macumber Reservoir.** Macumber Reservoir has a storage capacity of 425 af, and has a reservoir surface area of 85 acres. At Macumber Reservoir, Pacific Gas and Electric Company has provided a campground with seven campsites, and five walk-in campsites. At an elevation of 3,500 feet in Lassen National Forest, Lake Macumber Campground has lots of trees and good lake and stream fishing, especially in May and June. As with the North Battle Creek campground, swimming and fishing access are available, as well as a car-top boat launch. Boats powered by electric motors only are allowed on Macumber Reservoir.

Outside of the Battle Creek license boundaries, Pacific Gas and Electric Company leased lands to others for the development of campsites. The YMCA has a camp at Lake Macumber, and the Willow Springs Resort is located near the South Powerhouse.

Pacific Gas and Electric Company has an informal agreement with the CDFG not to lower the Macumber Reservoir below 12 feet at any time, to avoid potential adverse impacts to fish (see Fisheries Section, 4.4).

***Lake Grace and Lake Nora.*** Lake Grace and Lake Nora are easily accessible off State Highway 44. They attract recreationists interested primarily in fishing and picnicking. Pacific Gas and Electric Company provides a day use area at each lake as required by FERC. On Lake Grace, ten picnic spots and fishing access are available. On Lake Nora, Pacific Gas and Electric Company has provided 10 picnic spots and fishing access. Dispersed use (i.e., recreation uses that occur over a broad area such as hiking and bird-watching) occurs at the many trails in the vicinity of the two small lakes.

Until 1997, Pacific Gas and Electric Company provided potable water for picnickers at Lake Grace and Lake Nora. However, repeated vandalism to the domestic water system at the picnic areas over a ten-year period was cause for Pacific Gas and Electric Company to apply to FERC for an amendment to the FERC-approved recreation plan to eliminate the obligation to provide potable water. FERC agreed that the incidents of vandalism were likely to continue and that Pacific Gas and Electric Company was justified in eliminating the provision of potable water at the day use areas at Lake Grace and Lake Nora.

Pacific Gas and Electric Company permits the CDFG to host an annual free fishing day (no license required) on Lake Grace and Lake Nora. This event occurs in May of each year and is designed to be a father-child fishing experience. Pacific Gas and Electric Company informally allows this event to occur, since it is not required by any of its FERC license or other regulatory conditions.

***North Battle Creek.*** According to whitewater recreationists, it is possible to put in (i.e., land whitewater craft) on the North Fork Battle Creek. This fork is subject to diversions, and the trees are close to the river. Boaters are sometimes turned back at higher flows. Immediately after the whitewater boating landing area, there is a sharp class III-IV drop, which can be portaged on the left. (The International Scale of Difficulty classifies river reaches with six classes ranging from Class I to Class VI. Class I represents the easy end of the range and Class VI the extremely difficult end of the range.) After this comes a fairly long and busy class IV- rapid that needs to be bank-scouted or carefully boat-scouted since the entire rapid is not visible from the top. Portaging would not be easy due to steep rock walls. There are a few more class III+ or IV- drops before the creek flattens out above its confluence with the South Fork. Total distance on the North Fork is a little over one mile.

***Watershed Lands Associated with Battle Creek.*** Because of lack of access, there are minimal recreational opportunities on Watershed Lands within the Battle Creek license. In the area of Volta Powerhouses (as a part of the Battle Creek license), there are several parcels in which Battle Creek license canals are located. These canals provide some fishing opportunities but access is very limited because of the private ownership surrounding these parcels.

In the vicinity of Inskip Powerhouse (not a part of the Battle Creek license), there are several parcels of Watershed Lands in which canals are located. Due to lack of access because of private

ownership, these lands are not accessible to the public so there are no recreational opportunities in this area.

#### **4.6.4.2 DeSabra Regional Bundle**

##### **Regional Setting**

This section describes the recreational facilities and resources associated with Pacific Gas and Electric Company's hydroelectric Licenses proposed for ownership transfer in the DeSabra Regional Bundle. The section focuses on describing recreation activities, improvements, and use patterns at recreation areas (i.e. reservoirs, rivers and streams, and associated lands) potentially affected by the transfer of ownership. The regional recreation setting is also described.

Other recreational facilities in the vicinity of the DeSabra Regional Bundle include three Lassen National Forest campgrounds with a total of 31 campsites, three California State Parks in the Lake Oroville State Recreation Area with a total of 227 campsites, and 14 Plumas National Forest campgrounds with a total of 193 campsites. The total number of non- Pacific Gas and Electric Company campsites in the DeSabra Regional Bundle area is 451.

The Plumas National Forest provides recreational opportunities in the area. There are 38 campgrounds, 5 group camps, 5 picnic areas, 5 observation sites and 13 boating sites in this forest. The Forest offers 3 swimming and 8 fishing sites. Recreation use capacity is 258,770 persons at one time. Twelve of the 38 family campgrounds are fully utilized on summer holiday weekends.

When the Plumas National Forest Land and Resource Management Plan was prepared in 1988, the average campground was used 20 to 35 percent of theoretical capacity (USFS, 1988b). In 1982, the total use of these campgrounds was 976,000 recreation user days (USFS, 1998b). The Land and Resource Management Plan estimated that campground capacity would need to be increased by 30 percent to accommodate projected year 2000 demand for developed recreational facilities.

Within the Plumas National Forest annual dispersed recreation was estimated to be 1.3 million recreation user days. Primary dispersed recreation activities are camping, fishing, and pleasure driving (USFS, 1988b). Demand for hiking trails is increasing forest-wide. Cross-country skiing and off-road recreation vehicle use occurs in the Forest. Overall supply of recreation resources is adequate to meet demand in the Plumas National Forest. There will be a need to provide new campgrounds to serve Reno demand and the Lakes Basin Recreation Area. New campgrounds and trails will be needed on the western-edge of the Forest (USFS, 1988b).

Lake Oroville is located south west of the DeSabra Regional Bundle and provides over 200 campsites (some available year round), water skiing, fishing, swimming, and hiking opportunities.

Table 4.6-8 summarizes the hydroelectric licenses that are contained within the DeSabra Regional Bundle.

**Table 4.6-8 PG&E Co. Hydroelectric Licenses within the DeSabra Regional Bundle**

Bundle	License
Bundle 5: Hamilton Branch	Hamilton Branch (non-FERC)
Bundle 6: Feather River	North Fork Feather River (FERC 2105)
	Rock Creek-Cresta (FERC 1962)
	Poe (FERC 2107)
Bundle 7: Bucks Creek	Bucks Creek (FERC 0619)
Bundle 8: Butte Creek	DeSabra-Centerville (FERC 0803)
	Lime Saddle (non-FERC)
	Coal Canyon (non-FERC)

**Bundle 5: Hamilton Branch**

The Hamilton Branch Bundle includes one non-FERC-licensed project, Hamilton Branch, located between the Lassen National Forest and Plumas National Forest approximately 25 miles west of Susanville. Hamilton Branch is south of Highway 36 between Lake Almanor and Mountain Meadows Reservoir. It is a part of the Upper Sacramento River system, and straddles the Plumas and Lassen County lines.

Chester, Westwood, Canyon Dam and Greenville are communities in the area of Hamilton Branch that offer shopping opportunities. Other resort-based shopping opportunities are available on the East shore of Lake Almanor and at the Peninsula Market.

The Lassen National Forest and Plumas National Forest provide both developed and dispersed recreational opportunities in the area. These are described in the beginning of the section on the Shasta Regional Bundle, above.

***Hamilton Branch (non-FERC)***

There are no developed recreational facilities associated with the Hamilton Branch Powerhouse. An informal parking area at the Hamilton Branch Powerhouse provides access. Recreational uses in the area include hunting and fishing at Mountain Meadows Reservoir.

***Reservoirs.*** There is one reservoir associated with Hamilton Branch, Mountain Meadows Reservoir. Due to the minor use and lack of developed facilities at this reservoir, it is considered a minor recreational resource.

***Rivers and Streams.*** The North Fork Feather River provides minimal recreational activities between Mountain Meadows Reservoir and Lake Almanor.

***Minor Recreational Resources.*** Mountain Meadows Reservoir (also known as Walker Lake) is impounded by Indian Ole Dam on Hamilton Branch of the North Fork of the Feather River

approximately 5.5 miles upstream from the point where this stream flows into Lake Almanor Reservoir of the North Fork Feather River license. It is about 26 feet high and 310 feet long across the top, at an elevation of 5,035.66 feet. The reservoir has a storage capacity of 23,952 af and a surface area of 5,800 acres.

In 1966, Pacific Gas and Electric Company applied for a license to operate the Hamilton Branch under FERC. It was later deemed that Hamilton Branch needed no FERC license to operate, as it did not meet the Federal Power Act's definition of "navigable water" and there had been no "post-1935 construction". As a part of the 1966 application for license, Pacific Gas and Electric Company filed an Exhibit R-1 (Recreation Plan). This Plan mentioned that artificial habitat for Canada goose had been installed at the eastern end of the reservoir in cooperation with CDFG and local sportsmen's groups. Plans to install a ramp for launching small, low-speed boats, several campgrounds in the vicinity, and picnic and fishing access facilities evidently did not reach fruition after it was determined that Hamilton Branch could continue to operate outside of FERC's jurisdiction. For many years, Pacific Gas and Electric Company's lands in Hamilton Branch have been informally open for recreational uses such as fishing, hunting, picnicking, hiking, and wildlife viewing.

Mountain Meadows Reservoir contains catfish and largemouth bass, and is stocked by the CDFG (see Fisheries Section, 4.4). The reservoir is usually drawn down early in the year to minimize evaporation. Fish passes are installed at all Hamilton Branch diversions.

For winter sports, numerous ungroomed snowmobile and/or cross-country ski trails loop around the reservoir.

Developers are planning a ski and golf resort on 6,000 acres of timbered mountainside on the northwest shore of Mountain Meadows Reservoir. A ballot initiative to change Lassen County zoning codes is underway to allow commercial and residential development in the area that now produces timber, and provides habitat for bald eagles, osprey, and willow flycatcher. If the ballot initiative passes, construction on the "Dyer Mountain Resort" could begin as soon as June 2001.

North Fork Feather River at Hamilton Branch contains resident populations of brown and rainbow trout, and is stocked each year with brown, rainbow, and brook trout by the CDFG.

Kokanee salmon spawn in tributaries to the Hamilton Branch and migrate upstream from Lake Almanor.

***Watershed Lands Associated with Hamilton Branch.*** There are no Watershed Lands associated with Hamilton Branch.

**Bundle 6: Feather River**

The Feather River Canyon is well known for its scenic beauty, and attracts swimming, fishing, and hiking enthusiasts. Highway 70, which parallels the North Fork Feather River from Jarbo Gap to Belden, has been designated a Scenic Byway as a part of the National Forest Scenic Byway Program. The North Fork Feather River originates in the Lassen Volcanic National Park. Flowing through Lake Almanor (see Figure 4.6-4), it flows south into Lake Oroville, where the waters of the South and Middle Forks of the Feather River join it.

Plumas National Forest and Lassen National Forest recreational facilities, the extent of use of these facilities, and dispersed recreation are described in the beginning of the section on the Shasta Regional Bundle section, above. Other recreational facilities are also available through private resorts, and other Pacific Gas and Electric Company hydroelectric licenses in the area.

People recreate at Lake Almanor and shop the surrounding area at various resorts and stores in Chester. In Chester there are a grocery market, three sporting goods stores, gift and clothing shops, and two hardware stores. Those recreating at the lake use a market on the eastside of Lake Almanor. During the winter these stores do minimal business and depend on sales in the summer to survive.

Users of facilities of the Rock Creek-Cresta license can shop at Belden, Tobin, Storrie, and Quincy. Users of the Poe license facilities can shop in Cherokee, Paradise, and Oroville.

***Upper North Fork Feather River (FERC 2105)***

The North Fork Feather River license operates on the North Fork Feather River and Butt Creek in Plumas County, predominantly on lands within the Plumas National Forest. A portion of land on the west side of Lake Almanor falls within the Lassen National Forest. The North Fork Feather River license includes three reservoirs and four Powerhouses, plus tunnels and penstocks for moving water, and various recreational facilities.

Table 4.6-9 provides information on the size of the Pacific Gas and Electric Company recreational facilities and numbers of visitors.

**Table 4.6-9 Upper North Fork Feather River Recreational Facilities**

Name	Type of Facility	Number of Units	All on PG&E Co. Property? If no, list other owner	Visits in 1996	Comments
Located at Lake Almanor					
Lake Almanor	Campground	160	no, USFS	49,056	Part of the site is on USFS land
Almanor Scenic Overlook	Day use, rest area	N/A	yes		
Canyon Dam Picnic Area	Day use, picnic area	10	yes	5,131	

**Table 4.6-9 Upper North Fork Feather River Recreational Facilities**

Name	Type of Facility	Number of Units	All on PG&E Co. Property? If no, list other owner	Visits in 1996	Comments
Eastshore Picnic Area	Day use, picnic area	10	yes	502	
Conery Group Camp	Campground	50 person	yes	3,150	
Lake Almanor Camp Overflow	Informal camping area	35		5,416	
Last Chance	Campground	25 (12 family, 13 group) <sup>1</sup>	yes	3,886	Access to site across non-license lands
Located at Butt Valley Reservoir					
Alder Creek Picnic Area	Day use and boat launch	3	yes	1,643	
Cool Springs	Campground	30	yes	6,712	
Ponderosa Flat	Campground	63	yes	21,000	
Butt Lake Camp Overflow	Informal camping area	10		440	
Located near the Belden Powerhouse					
Belden Rest Stop	Rest area, picnic area	N/A	yes	13,872	
Located within North Fork of the Feather River Area					
Dispersed Use	Access areas	N/A		19,102	

Source: PG&E Co., 1999a.

**Reservoirs.** The key reservoirs included in the North Fork Feather River license are Lake Almanor and Butt Valley Reservoir (see Figure 4.6-5). A minor reservoir is Belden Forebay.

**Lake Almanor.** The largest reservoir associated with the North Fork Feather River license, Lake Almanor, was created by Canyon Dam in 1914, located near the town of the same name. Lake Almanor sits at an elevation of 4,504 and offers 52 shoreline miles available for water-related recreational activities. The largest lake in Plumas County, it has a surface area of over 42 square miles at its maximum storage volume of 1,142,000 af. In recent years, minimum storage levels at Lake Almanor have been about 700,000 af (about elevation 4,476). The minimum levels occur in the winter; summer recreation season reservoir levels are generally much higher. In addition, a FERC Order, dated November 22, 1991, requires that the flow released to the North Fork Feather River is 140 cfs beginning on the Friday preceding the last Saturday in April to correspond to the opening of trout season (FERC. 1991b). Recreation development in the Upper North Fork Feather River license is extensive, especially at Lake Almanor. Pacific Gas and Electric Company has constructed recreational facilities at Lake Almanor and operates these facilities in accordance with Article 14 of FERC 2105. Public use facilities provided by either Pacific Gas and Electric

Company or USFS include over 350 overnight camping sites, 14 group campgrounds, and over 10 boat launching ramps.

Pacific Gas and Electric Company campgrounds and resorts in the area are filled to near capacity in the summer season. In 1992, the number of days at or over capacity at five of the camping areas listed in Table 4.6-9 was 55 days (FERC 1993). A 1994 Environmental and Public Use Inspection Report, prepared by FERC, indicates that the Lake Almanor campground experienced 18 days at or over capacity for 1990, none for 1991, and 17 days at or over capacity for 1992. These data are consistent because the Lake Almanor Campground is included in the five campgrounds. Therefore, the camping facilities including Lake Almanor Campground had 35 days over capacity in 1992.

In the fall, fishing and big game and waterfowl hunting are popular, and during the winter such activities as skiing and snowmobiling are popular.

There is no recreation plan for the North Fork Feather River license, as the Federal Power Commission's (now FERC) relicensing process in the 1950s did not require a recreation plan. The facilities built by Pacific Gas and Electric Company at Lake Almanor, Butt Valley, and the Belden Rest Stop were not formally required by FERC, but the facilities are within the FERC license boundary. According to Pacific Gas and Electric Company the rest stop will likely be incorporated into the new license due in 2004.

The lack of a recreation plan for the North Fork Feather River license with such extensive recreation development results in poor control over, and almost no coordinated planning of facilities, especially the private developments. Pacific Gas and Electric Company initiated a dock permit program in 1992 that attempts to control increasing encroachments into North Fork Feather River license waters. Pacific Gas and Electric Company has coordinated with the community, political officials, and public agencies in the development of the permit initiated a program since 1992.

Pacific Gas and Electric Company plans to address increasing recreation demand in the recreation plan that will be developed as part of the North Fork Feather River license relicensing in 2004 (Pacific Gas and Electric Company, 1999a). This relicensing will include a Recreation Plan for this FERC license area. Pacific Gas and Electric Company currently maintains a permit system for the extensive private developments at Lake Almanor and regularly administers these private uses on North Fork Feather River license lands and waters.

***Non-Pacific Gas and Electric Company Facilities.*** Private developments around Lake Almanor include 1,050 lakefront lots, from 400 to 500 private docks, and the Almanor Country Club development (FERC, 1994b). Camp Almanor is owned by Pacific Gas and Electric Company and leased to and operated by its employee association.

In addition to the numerous summer homes and private residences that dot the shoreline of Lake Almanor, there are numerous recreational facilities, including resorts, campgrounds, picnic areas, boat launching areas, beaches, and marinas. Land deeds from 1935 between Great Western Power Company and the Red River Lumber Company allowed most private owners abutting the 4,500-foot contour to construct recreational facilities below 4,500 feet elevation.

On Lake Almanor's shores, the following recreational facilities exist: Lake Almanor Country Club, a private, gated community that includes the east side recreation area, the west side recreation area, and a golf course. Both recreation areas offer boat launching facilities, beach and swim areas, barbeque grills and picnic areas, tennis courts, and sanitary facilities. Water skiing, sailing, wind surfing and Hobie Cat lessons are available through Wilson's Watersports at the country club.

Various other private recreational facilities are located on Lake Almanor, including Lake Cove Trailer Lodge, Sierra Bible Camp, Big Meadows Resort, Plumas Pines Resort, Bunyan Resort, Kokanee Lodge, Big Cove Resort, Little Norway, Knotty Pine Resort, Moonspinner Resort, Country Club Resort, Hinman's Cabins, Villager Resort, Harbor Lites, Bosworth's Resort, Big Springs Resort, Lassen View Resort, Vagabond Resort, Lake Haven Resort, East Shore Motel Resort, Miller's Trailer Court, Crawford's Resort, North Shore Campground, Wilson's Camp Prattville, Forest Park RV, Whispering Pines RV Park, and Lake Almanor Inn and Marina.

***Pacific Gas and Electric Company Facilities.*** Pacific Gas and Electric Company built a campground and picnic sites at Lake Almanor, a campground upstream of Lake Almanor, and two campgrounds and a boat launch at Butt Valley. These facilities were not constructed because of applicable license and permit requirements. Those facilities located within FERC boundaries are not officially considered by FERC to be North Fork Feather River license facilities although the licensee constructed them, they are license-related, and are within the FERC boundary. FERC has no jurisdiction over those facilities constructed by Pacific Gas and Electric Company on lands outside of the FERC boundary, and these facilities are not an obligation of the FERC license. However, a recent communication from Pacific Gas and Electric Company (PG&E Co., 2000g) in response to an information request from the USFS indicates that all of the recreational facilities provided by Pacific Gas and Electric Company at both Lake Almanor and Butt Valley Reservoir are required by FERC.

On the southwestern shore of the lake, Pacific Gas and Electric Company owns Lake Almanor campground. It has 160 campsites and offers opportunities for fishing, swimming, boating (a boat launching ramp is nearby the campground), and water skiing. This campground was financed by Pacific Gas and Electric Company, but has been turned over to the USFS. A sewage dump station is available for public use. A portion of this campground is located on USFS lands.

Conery Group Camp is located 1/10 of a mile from the Lake Almanor Dam and is owned and operated by Pacific Gas and Electric Company. It accommodates groups of up to forty persons and is available by reservation only.

The Almanor Scenic Overlook is made available by Pacific Gas and Electric Company for day use and rest area purposes. It offers a view of the lake with Lassen Peak looming in the background.

The Canyon Dam Picnic Area is located just south of the Scenic Overlook. There are 10 Pacific Gas and Electric Company owned and maintained picnic units, and the public beach affords swimming and fishing opportunities.

Another picnic and day use area is located north of the Canyon Dam Picnic Area on the east shore of the lake. Ten picnic units, and fishing and swimming access are provided by Pacific Gas and Electric Company.

Views of Lake Almanor, Dyer Mountain, and Lassen Volcanic National Park can be found along the entire route of the 9 ½-mile Lake Almanor Recreation Trail. This multi-use trail winds through stands of pine, fir, and incense cedar, as well as meadows, a campground, a summer home tract, and several lakeshore areas with swimming and fishing access. The paved trail is handicapped accessible. There are six trail access points: just off Hwy 89 on a small dirt road opposite the Humbug/Humboldt Road from the Almanor boat ramp parking area on the west side of the lake, and from four other parking areas that have been established between the community of Prattville and Hwy 89.

The trail is ideal for cross-country skiing and snowshoeing when winter brings snow to the basin.

The Lake Almanor basin provides rich and varied wildlife viewing opportunities. Osprey and bald eagle are often seen from the west shore. Lake Almanor and the surrounding area is also the summer range of the Tehama deer herd, the largest migratory deer herd in California. Several species of waterfowl stop at the lake during their annual migrations north and south.

Angling is allowed year round on the lake (although winter access is limited to those with snowshoes or skis). The primary sport fishery in Lake Almanor is for rainbow trout, brown trout, and Chinook salmon. Sport fishery also exists for smallmouth bass and largemouth bass, however, due to the lake's cold water conditions largemouth bass will never become a significant sport fishery (DWR, 1986). CDFG has estimated that Lake Almanor could produce several thousand pounds of trout annually if not for large populations of tui chub and smelt. These species utilize zooplankton as their major food source thus inhibiting rainbow trout and Kokanee salmon populations through competition for food (PG&E Co., 1989).

***Lake Levels.*** A review of monthly lake volume during June, July, and August, from June 1990 to June 2000, was conducted. This period represents the peak recreation period between Memorial Day and Labor Day. The average volume at Lake Almanor during this period was 951,853 af.

The minimum lake volume occurred in August 1991 and was 765,930 af. The maximum lake level was 1,130,796 af and occurred in June 1995.

When Lake Almanor approaches the spillway level, flooding occurs at recreational facilities around Lake Almanor. According to the Lake Almanor project EIR, levels reach 4,494 feet above mean sea level. The EIR identified considerable flooding of recreation resources when lake levels exceed about 4,492 feet; these resources include recreation areas, one public campground, one organization camp, three day-use areas and 19 private resorts.

The lowest Lake Almanor volume of 765,930 af recorded in the last ten years translates into lake surface elevations of 4,479 feet above sea level. The maximum lake volume recorded in the last 10 years of 1,130,796 af translates into lake surface elevations of 4,494 feet above sea level.

Several lake users and interested parties including members of the 2105 Committee and the County Sheriff Boat Patrol were interviewed regarding the function of lake recreational facilities at Lake Almanor. Generally, the interviews revealed that most lake users believe that the minimum lake level at Lake Almanor from Labor Day to Memorial Day should be as they have been in the last 10 years (i.e. 4,479 feet asl). Several people interviewed indicated that at lake level 4,484 ft. asl, boat launch ramps become difficult to use and boat docks are in shallow water making some of them unusable. The lake bottom near the edge of the lake is generally gradually sloping, especially on the west shore. The result is that boat ramps are not adequate to launch boats in many instances when lake levels drop below 4,484 feet asl. However, all those interviewed indicated that lake levels in the peak season over the last 10 years (i.e., 4,479 feet asl) were adequate for recreation purposes.

Lake Almanor has stumps, rocks, and islands that are at sufficient depth below the lake surface or are adequately marked when the lake is level 4485 feet asl. These features can be hazardous to boating when lake levels are lower because they are close to the lake surface and there are too many to mark with buoys.

Various studies prepared on recreation demand around Lake Almanor indicate that existing campground and recreational facilities are full for the peak season between Labor Day and Memorial Day. There is an unfulfilled need for recreational facilities at Lake Almanor (Simcox, 1993; Fletcher, 1999; USFS, 1995a; USFS, 1996).

***Butt Valley Reservoir.*** Butt Valley Reservoir is located to the southwest of the southwest edge of Lake Almanor. It consists of 1,600 surface acres of water with 12 shoreline miles. The storage capacity is 49,800 af.

Butt Valley Reservoir is an important trophy fishing lake. Butt Valley Reservoir ranks as one of the top five places in the world for lake wild trout fishing. Anglers travel from across California and the United States to fish the reservoir (Cal Trout, Inc., 2000b).

Three recreation sites have been developed at Butt Valley Reservoir by Pacific Gas and Electric Company as required by FERC: Alder Creek picnic area, Cool Springs campground, and Ponderosa Flat campground. An overflow campground is also provided at the northeastern end of the Reservoir.

Alder Creek contains three picnic units on the east shore of the reservoir, located one mile south of Ponderosa Flat campground. At an elevation of 4,150 feet, Alder Creek provides access for fishing and swimming, as well as a boat ramp.

Cool Springs campground provides 30 campsites on the east shore of the reservoir, 2.5 miles south of Ponderosa Flat campground. It also sits at an elevation of 4,150 feet, and offers access for fishing and swimming. A boat-launching ramp is nearby the campground.

Ponderosa Flat campground is located at the north end of the reservoir on the east shore, and provides 63 campsites. Recreational opportunities include fishing, swimming, boating and a nearby boat-launching ramp. In the event that the campground becomes full, overflow camping is provided as well.

A review of Butt Lake level elevations in the past ten years during the peak recreation period between Memorial Day and Labor Day provided a low level of 35,701 af equivalent to 4,123 feet asl. This lake level is the threshold below which recreational facilities on Butt Lake become inoperable.

***Rivers and Streams.*** The North Fork Feather River provides key recreational activities in the vicinity of the North Fork Feather River license. Last Chance Creek is a minor recreational stream in the area.

Before water diversions and controls instituted by Pacific Gas and Electric Company, the North Fork Feather River offered some of the best trout fishing in Plumas County. In the early 1900s, Western Pacific railroad advertised widely for anglers to visit the area. Between 1937 and 1942, fishing remained good, but the average fish size dropped to 10 to 15 inches (down from 16-20 inches before 1937). The size decrease was probably due to the large increase in angling pressure related to the new Highway 70 completed in 1937. In 1962, an evaluation conducted by USFWS determined that trout fishing was still excellent in the North Fork Feather River downstream from Lake Almanor to the Caribou Powerhouse. However, below Belden, the pre-North Fork Feather River license fishery resources of the North Fork Feather River had been nearly eliminated. This loss was attributed to reduced flows, increased temperatures, and the associated increase in nongame fish species now favored over trout by the changed habitat conditions. Because the CDFG plants the North Fork Feather River at Belden Forebay annually with up to 350 pounds of catchable trout, and because North Fork Feather River tributaries continue to support wild runs of trout, fishing is still popular on the North Fork Feather River. According to the DWR North Fork Feather River Cumulative Impact Study, anglers have learned to accept reduced limits and special

angling restriction associated with the reduced fishery on the North Fork Feather River. Highway 70 provides good access to this area. Rainbow trout and brown trout are the primary game fish in this area.

The North Fork Feather River near Belden contains three stretches used for whitewater boating: the North Fork from Belden Forebay to the junction of North Fork and East Branch, the East Branch for seven miles upstream from the North Fork junction, and the North Fork from Rock Creek Forebay to the Rock Creek Powerhouse. Best known is the run below Belden Forebay.

In 1998, the Upper Feather River was offered for the first time for commercial rafting. Several runs on the Feather River, each approximately nine miles long, offer Class III-IV whitewater near the resorts of Tobin and Belden.

According to whitewater rafting enthusiasts (Scripps College, 2000; California Rivers, 2000; California Creekin; 2000 c; Shasta Paddlers, 2000), due to the Pacific Gas and Electric Company Powerhouses on the North Fork Feather River diverting water from the 50-mile long river canyon, whitewater flows can only be relied upon during extremely wet storms, typically the winter months when run-off exceeds the capacity of Pacific Gas and Electric Company's diversion pipes and reservoir storage.

**Minor Recreational Resources.** Belden Forebay has a storage capacity of 2,421 af and drains an area of 616 square miles.

Pacific Gas and Electric Company has provided the Belden Rest Stop, which includes a picnic area, on the north side of Highway 70 at adjacent to the Belden Powerhouse. There are four picnic units, a historic gold ore stamp mill, and an information center. Although not required by FERC, Pacific Gas and Electric believes that this rest stop will likely be incorporated into the new license due in 2004 (PG&E Co., 1999a).

A small resort with cabins and a lodge with a dining room and bar sit on the south bank of the North Fork Feather River at Belden.

Belden Forebay is well known to trout anglers (Stienstra. 1999b).

Plumas National Forest provides several campgrounds in the vicinity of Belden. Gansner Bar campground is located 2 miles northeast of Belden on Caribou Road and provides 14 campsites. The North Fork campground is located on Caribou Road 4 miles northeast of Belden and provides 20 campsites. Queen Lily campground is located close to the North Fork Campground and provides 12 campsites. All three USFS campgrounds offer fishing and swimming access nearby.

Last Chance Creek flows into the north end of Lake Almanor. The FERC-required Pacific Gas and Electric Company recreational facilities here include 12 family campsites and 12 group camp units located at 4,500 feet elevation.

***Watershed Lands Associated with Upper North Fork Feather River.*** Watershed Lands associated with the Upper North Fork Feather River license provide minimal recreational opportunities.

In the vicinity of the Belden Powerhouse, on Watershed Land, there are two leases to third parties for summer home recreation purposes. These homes are located on the south side of the Feather River, approximately one-quarter mile from the junction of Highway 70 and Caribou Road. There are other parcels adjacent to the summer homes that provide access to this portion of the Feather River. There are also Watershed Lands that run northerly along the North Fork Feather River and Caribou Road for approximately one mile, beginning at the junction of Highway 70 and Caribou Road. These lands provide minimal access for fishing the North Fork Feather River.

For the last several years, Pacific Gas and Electric Company has permitted the community of Chester to host a Civil War reenactment on Pacific Gas and Electric Company land near Lake Almanor. Pacific Gas and Electric Company is not required under its FERC licenses or other regulatory requirements to allow such an event to be held on its land.

### ***Rock Creek-Cresta (FERC 1962)***

***Reservoirs.*** There are no key reservoirs associated with the Rock Creek-Cresta license. The minor reservoirs are Rock Creek Reservoir and Cresta Reservoir.

***Rivers and Streams.*** North Fork Feather River provides key recreational activities in the vicinity of the Rock Creek-Cresta license. Yellow Creek and Soda Spring Historic Site are minor recreational resources.

The whitewater boating run below Rock Creek Dam was run for the first time in spring 1975. Boating use of the river depends on spills which occur irregularly during the winter and spring months of wet years.

The fisheries decline at the Rock Creek-Cresta license is well documented in the Fisheries Section (Chapter 4.4) of this document. Due to the annual stocking of rainbow and brown trout by the CDFG, fishing in the North Fork Feather River remains a popular activity.

Table 4.6-10 provides information on the size of Pacific Gas and Electric Company-recreational facilities and numbers of visitors.

**Table 4.6-10 Rock Creek-Cresta Recreational Facilities**

Name	Type of Facility	Number of Units	All on PG&E Co. Property? If no, list other owner	Visits in 1996	Comments
Located on Highway 70 near Storrie					
Shady Rest	Day use, picnic area & rest area	N/A	PG&E Co.	14,445	
Located in Humbug Valley					
Yellow Creek	Campground	10	no, USFS	1,692	Part of the site is on USFS land. This facility is not within the FERC license boundary.
Soda Springs Historic Site	Day use	N/A	yes		This facility is not within the FERC license boundary.
Located within Bundle Area					
Dispersed Use	Access areas	N/A		8,467	

Source: PG&E Co., 1999a.

**Minor Recreational Resources.** Rock Creek Reservoir has a storage capacity of 4,660 af, with a surface area of 80 acres. A considerable amount of silt and gravel has reduced the capacity of the Rock Creek Reservoir.

Cresta Reservoir has an original storage capacity of 4,400 af, with a reservoir area of 62 acres. Cresta drains an area of 1,872 square miles.

Developed recreational facilities at the Rock Creek-Cresta license consist of one highway rest stop, the Shady Rest Stop, along State Highway 70 between Cresta Powerhouse and Cresta Reservoir. Shady Rest Stop is purportedly comprised of six picnic units, ten parking spaces, potable water facilities, flush toilets, an informational kiosk, and North Fork Feather River access. A site visit on August 13, 2000, however, confirmed that the parking spaces were damaged in the January 1997 high water event. That visit also indicated that no picnic tables remain. The informational kiosk and the restrooms are in good condition, however.

Cresta and Rock Creek Reservoirs are narrow, impounded sections of the North Fork Feather River behind concrete dams. Little boating activity occurs at the Rock Creek-Cresta Reservoirs due to such factors as the physical configuration of the reservoirs, poor reservoir fisheries, and the abundance of other high quality boating opportunities within the same time travel zone.

In fact, Pacific Gas and Electric Company believes (PG&E Co., 1981b) that the Cresta and Rock Creek Reservoirs are unsafe for boating as:

- The reservoirs generally have steep banks, making shoreline access and boat launching and retrieval difficult;
- The reservoirs have limited vehicular access areas able to meet Caltrans sight distance and safety requirements;

#### 4.6 Recreation

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- The reservoirs are very narrow, making high speed boating hazardous and placing constraints on the operations of all boats;
- The reservoirs are subject to gusty winds throughout the year, making use of small boats hazardous;
- During reservoir spilling (during the spring, from run-off from the North Fork Feather River), the use of boats on the reservoirs in the vicinity of the dams could be extremely hazardous;
- There is significant fluctuation in the water surface elevation due to hydroelectric operation; and
- Automatic activation of the dams' drum gates causes sudden and immediate major reductions in reservoir water levels.

Yellow Creek, which flows through Humbug Valley northeast of the Rock Creek-Cresta license, is one of 17 statewide streams designated a "Wild Trout Stream" by CDFG and, consequently, preserved for its attractive stream-trout fisheries which are naturally sustained by wild trout strains rather than artificially sustained by domesticated, catchable-sized trout stocked on a put-and-take basis (DWR, 1986). The Humbug Valley land totals approximately 2,300 acres. A near-pristine setting, biologically productive waters, angling for wild trout, and a self-sustaining wild trout population that are relatively unaffected by angling pressure are all necessary criteria for inclusion into "Wild Trout Stream" status. At present, Lower Yellow Creek is managed exclusively for wild rainbow and brown trout (DWR, 1986). Pacific Gas and Electric Company has developed a campground on Yellow Creek. The campground contains 10 sites, and offers creek access. Each site is equipped with a picnic table, bear-proof food storage, a fire ring, and a camping grill.

The Yellow Creek Trailhead is located to the right of the rest area across from Belden on State Highway 70. It is an enjoyable creekside trail 1.4 miles in length, dead-ending in a box canyon.

Soda Springs Historic Site is located on the road to the Yellow Creek campground. Historically used by Native Americans, then pioneer settlers, the spring is located adjacent to private lands. A restored potable mineral springs; the Soda Springs site offers a picnic table, an historical marker, and an informational display. This facility is not within the FERC license boundary for the Rock Creek-Cresta license.

There are no FERC-license articles that pertain to recreation resources for the Rock Creek-Cresta license. Pacific Gas and Electric Company's existing Shady Rest Stop is proposed for inclusion in the new license (pending). Yellow Creek Campground and the Soda Spring Historic Site are not within the FERC license boundaries but are within Humbug Valley, which is proposed for off-site mitigation under the new license. Pacific Gas and Electric Company currently maintains and operates the Yellow Creek Campground and Shady Rest Stop although this practice is not required under a current FERC license or other regulatory conditions.

***Watershed Lands Associated with Rock Creek-Cresta.*** The Watershed Lands associated with the Rock Creek-Cresta license do not provide any formal or informal recreational opportunities. These lands are mostly located along the steep slopes of the Feather River Canyon.

***Poe (FERC 2107)***

***Reservoirs.*** No key recreational reservoirs are associated with the Poe license. The Poe Reservoir is a minor recreational feature of the Poe license.

***Rivers and Streams.*** The North Fork Feather River provides minimal recreational opportunities at this location.

***Minor Recreational Resources.*** Poe Reservoir has a storage capacity of 1,150 af and a surface area of 52 acres.

There are no developed recreational facilities associated with the Poe license. A pullout along State Highway 70 provides informal parking for recreation in the area. Pacific Gas and Electric Company allows the public to have free access to Poe license waters and adjacent lands for recreational purposes, according to the requirements of License Article 30.

Fishing and swimming access on the North Fork Feather River at the Poe license is limited to parking pullouts located along Highway 70 and access trails created by fishers and swimmers. As noted below, Pacific Gas and Electric Company roads can also provide access to the fishing and swimming opportunities on the North Fork Feather River. The “Poe Run” on the North Fork offers Class IV/V kayaking opportunities and there is a kayak slalom course site on the North Fork between Bucks Creek and Rock Creek Powerhouse.

***Watershed Lands Associated with Poe.*** Recreational opportunities on the Watershed Lands associated with the Poe license are limited due to the steep terrain and difficult accessibility of these properties. However, for those willing to make the effort to access these areas, there are several recreation areas available to the public. North of the Poe Powerhouse there is an area along the North Fork Feather River that is used for swimming, fishing, and occasional camping. Access to this area, known as Bardees Bar, is via an unimproved County Road. A four-wheel drive vehicle is required to drive to the area.

There is a parcel of Watershed Land located just north of the Poe Powerhouse that provides foot access to the North Fork Feather River. Swimmers and anglers occasionally use this area. Access to this area is via a FERC license road and short, steep trail to the river.

**Bundle 7: Bucks Creek**

There is one wilderness area in proximity to the Bucks Creek license. Located in the northwestern portion of the Plumas National Forest, the 21,000-acre Bucks Lake Wilderness was established in 1984 by the California Wilderness Act. The wilderness has a broad diversity of vegetation and topography. A few small lakes and ponds are located throughout the area. Elevations range from 2,000 feet in the Feather River Canyon to 7,017 feet at Spanish Peak. The top of the escarpment, which the Pacific Crest Trail crosses, commands spectacular view of the forest to the east and

north. Mount Lassen is visible on clear days. The Pacific Crest Trail runs through the Bucks Lake Wilderness Area and hikers wishing to access the Pacific Crest Trail park at the small gravel parking area.

The recreational facilities available in this Bundle met the demand from a variety of user groups in 1993 (Scordelis, 1993). Data for the Haskins Valley Campground for 1990 through 1992 indicate that occupancy exceeds 75 percent on most weekends between June 15 and September 15, and that full occupancy has occurred on several non-holiday weekends in 1991 and 1992 (Scordelis, 1993). Pacific Gas and Electric Company plans a 51-unit Bucks Inlet Campground for construction, but as of summer 2000, a triggering mechanism to initiate construction of this facility has not been identified (Scordelis, 1993). In past years, Pacific Gas and Electric Company has allowed the local community to host triathlon events and sailboating regattas on Pacific Gas and Electric Company's land and at Bucks Lake (see Figure 4.6-6). This practice is informal and is not required under Pacific Gas and Electric Company's FERC licenses or other regulatory requirements.

***Bucks Creek (FERC 0619)***

Table 4.6-11 provides information on the size of the Pacific Gas and Electric Company recreational facilities and numbers of visitors.

**Table 4.6-11 Bucks Creek Recreational Facilities**

Name	Type of Facility	Number of Units	All on PG&E Co. Property? If no, list other owner	Visits in 1996	Comments
Located at Grizzly Forebay					
Grizzly Forebay	Campground	7	no, USFS	745	Located in Plumas National Forest
Grizzly Forebay	Day Use, Fishing Access	N/A	no, USFS	969	Located in Plumas National Forest
Located at Bucks Lake					
Sandy Point Day Use Area	Day Use, Picnic Area	N/A	no, USFS	4,648	Located in Plumas National Forest
Mill Creek	Campground	8	Yes		
Sundew	Campground	19	Yes		
Haskins Valley Campground	Campground	65	yes	14,868	
Located within Bucks Creek license					
Dispersed Use	Access Areas	N/A		3,572	

Source: PG&E Co., 1999a.

***Reservoirs.*** The key recreational resource for the Bucks Creek license is Bucks Lake, with lesser levels of recreation occurring at Lower Bucks Lake, and Grizzly Forebay, and a minor level of recreation occurring at Three Lakes (Scordelis, 1993).

Bucks Lake is at an elevation of 5,000 feet with a storage capacity of 75,000 af. FERC License Article 13 of the Bucks Creek license specifies maximum amounts of reservoir drawdown during the recreation season (Federal Power Commission. 1974). Also, Pacific Gas and Electric Company currently maintains a 45,000 af carry-over at Bucks Lake that has had the effect of providing higher levels for recreation, but there is no license requirement to do so. According to FERC License Article 103, Pacific Gas and Electric Company is required to conduct environmental studies for the Bucks Creek license by December 2001, file mitigation plans by December 2003, and submit recommendations to FERC by December 2004 (FERC, 1988).

The recreation facility developments at the Bucks Creek license are regulated by a FERC-approved recreation plan (FERC, 1991a), the standard public recreation facility article (FERC License Article 18) and USFS Special Use Permits. FERC License Article 35 regulates the use of off-road vehicles in the Bucks Creek license. Pacific Gas and Electric Company allows the public to have free access to Bucks Creek license waters and adjacent lands for recreational purposes, according to the requirements of FERC License Article 19 (Federal Power Commission. 1974). In addition, there is a Memorandum of Understanding in place, dated June 8, 1998, between Pacific Gas and Electric Company, the USFS, and the City of Santa Clara regarding recreation to preserve and protect resource values and National Forest System lands affected by the Bucks Creek license. Pacific Gas and Electric Company and its joint licensee, the City of Santa Clara, and USFS entered into a Participating Agreement dated August 19, 1992. The Participating Agreement in essence authorizes Pacific Gas and Electric Company to pay the USFS “cash payment in lieu of constructing certain recreational facilities (potable water system at Grizzly Forebay walk-in campground, improvement of existing boat launch area at Grizzly Forebay, 15 parking spaces at Grizzly Forebay, and development of a Pacific Gas and Electric Company construction headquarters at Lower Bucks Lake Administration site)” in the Bucks Creek area that had been deemed desirable in the 1980s, but were later determined by the USFS to be no longer appropriate.

Fishing in Bucks Lake is for trophy size brown and rainbow trout. Kokanee salmon are also found at Bucks Lake. Bucks Lake is stocked annually with catchable rainbow trout. Water skiing and jet skiing are also popular on Bucks Lake.

Pacific Gas and Electric Company has allowed the construction of private cabins, private resorts, and organizational camps on the shore of Bucks Lake. The private cabins often have boat docks or other shoreline features for the specific use of the cabin owner and guests. This does not block public access to Bucks Lake. The private resorts on Bucks Lake have boat launching ramps, rental boats, stores and restaurants, and recreation vehicle spaces and campsites. The private resorts include Bucks Lake Lodge, Lakeshore Resort, and the Four-H camp operated by the Farm Bureau. Pacific Gas and Electric Company has a permitting process to oversee all private facilities that occupy Bucks Creek license lands and waters. In this process, all private docks, piers, retaining walls, and other facilities must meet certain criteria (FERC, 1993).

Pacific Gas and Electric Company has provided the 65-unit public campground and boat launch ramp at Haskins Valley Campground. Each unit at this campground has a picnic table, cooking stove, fire ring, and a bear-proof food locker. This facility also has paved access roads, parking spurs, traffic control measures, potable water and sanitary facilities (Scordelis, 1993).

The Sandy Point Day-Use Area, located within FERC boundaries, has a large paved parking area, a boat launch ramp, 20 family picnic units and one 10-person group picnic unit. Potable water and sanitary facilities are provided (Scordelis, 1993). Pacific Gas and Electric Company constructed two campgrounds on Bucks Lake. Pacific Gas and Electric Company provided the facilities to the USFS. The USFS contracts with Northwest Park Management to operate Sundew (19 units) and Mill Creek (8 units). Both have picnic tables and fire rings at each site, and both are located within FERC boundaries.

An informational display at a scenic overlook along the southwestern portion of Bucks Lake Road has been provided by Pacific Gas and Electric Company. The display describes the natural and Bucks Creek license features seen from the overlook and gives some historical information of the area.

Other recreational activities in the vicinity of Bucks Lake include the rental of horses for day or overnight use. During the winter, Bucks Lake is a destination for snowmobilers and cross-country skiers, with staging facilities and 75 miles of trails. Although the road from the town of Quincy to the lake is not plowed during the winter, the area remains open as a winter destination retreat. Two lodges, each with restaurants, a motel, and an inn remain open during all seasons.

A review of monthly lake volume during June, July, and August, from June 1990 to June 2000, was conducted. This period represents the peak recreation period between Memorial Day and Labor Day. The average lake volume at Bucks Lake during this period was 89,533 af. The minimum lake volume occurred in August of 1990 and was 68,753 af. The second lowest lake volume occurred in June 1992 and was 76,225 af. The maximum lake level was 104,682 af and occurred in June 1995.

The lowest Bucks Lake volume of 68,753 af, recorded in the last ten years translates into lake surface elevations of 5,135 feet above sea level. Resort operators indicate that lake levels have been adequate for recreational facilities operation during the past 10 years. This is used as the lowest level at which lake recreational facilities operate. The maximum lake volume recorded in the last 10 years of 104,682 af translates into lake surface elevations of 5,156 feet above sea level.

Fishing, camping, boating, hiking, sightseeing, hunting, and cross-country skiing are the principal activities in the region. Water skiing and jet skiing on Bucks Lake are also popular. Water-skiing and jet skiing on this lake has increased in recent years and user conflicts may become a concern (Scordelis, 1993).

**Rivers and Streams.** There are no key recreational streams associated with the Bucks Creek license.

**Minor Recreational Resources.** Lower Bucks Lake is situated at the northwest corner of Bucks Lake. It has a storage capacity of 5,843 af and a surface area of 136 acres.

Near Lower Bucks Lake, Pacific Gas and Electric Company constructed and the USFS operates the Hutchins Group Campground with three units total, each able to accommodate 25 persons. Communal dining areas, potable water, and sanitary facilities are provided at this campground (Scordelis, 1993).

Pacific Gas and Electric Company constructed, and the USFS operates, six primitive campsites on Lower Bucks Lake Reservoir. A small day use area is available at this facility. A fire ring and picnic table is provided for each campsite.

On Lower Bucks Lake there are two private organizational camps that occupy FERC license land. The Boy Scouts and Church of Latter Day Saints facilities provide cabins, campsites, communal meal areas, sanitary facilities and fire rings.

Grizzly Forebay has a storage capacity of 1,112 af. At the Grizzly Forebay, Pacific Gas and Electric Company constructed and maintains the 7-unit Grizzly Campground. This facility is located on the northern shoreline of the forebay and each unit provides a picnic table and a fire ring. Sanitary facilities are provided. A three-quarter mile hike from a paved parking lot to this campground is required. A boat launch and sanitary facilities are provided at the parking area (Scordelis, 1993).

The Grizzly Forebay hiking trail is a pleasant 1.25-mile trail at 4,300 feet, extending along the north shore of the forebay to the inlet of Grizzly Creek.

The Grizzly Forebay Gauging Station Trail, begins at 4,200 feet at the Forebay Trail trailhead. It leaves the road west of the parking area and descends gradually about 0.3-mile to the Stream gauging station. This trail, as with the Grizzly Forebay Trail, is recommended for hikers only (horses are not recommended and motorbikes are prohibited).

Three Lakes is a reservoir that occupies a remote area north of the Bucks Creek license. It is accessible by driving along the north shore of Lower Bucks Lake, then along the Pipeline Road (within the boundary of the FERC license, which states maintenance conditions) for approximately 10 miles. Beyond Lower Bucks Lake, this road is narrow, rough, and limited to four-wheel drive vehicles only. The reservoir has a storage capacity of 606 af, and drains an area of 1 1/2 square miles.

The trailhead to Three Lakes Trail, at 6,200 feet, is located at Lower Three Lakes. This trail climbs gradually 1.0 mile to Upper Three Lakes. This trail is recommended for hiking and horses, but motor vehicles are prohibited.

At the remote Three Lakes area, Pacific Gas and Electric Company has provided a small gravel parking area and a sanitary facility at the USFS trailhead leading to the Pacific Crest Trail (Scordelis, 1993). The Pacific Crest Trail is one mile from the trailhead.

Grizzly Creek campground is located two miles west of Bucks Lake on the Quincy-Oroville Highway at 5,400 feet. It contains eight units, piped-in water, and sanitation facilities. The campground is owned by the USFS, which contracts with Northwest Park Management for operation and maintenance.

***Watershed Lands Associated with Bucks Creek.*** The Watershed Lands associated with the Bucks Creek license are located along the steep slopes of the Feather River Canyon and do not provide any recreational opportunities.

### **Bundle 8: Butte Creek**

This bundle includes one FERC-Licensed project, the DeSabra-Centerville license, and two facilities that are not under FERC jurisdiction, Lime Saddle and Coal Canyon. Most of this bundle is located in Butte County. The exception is one parcel of Pacific Gas and Electric Company Watershed Land that is located in Tehama County. The Butte Creek Bundle is located approximately 5 miles northwest of Paradise and 20 miles east of Chico and extends to Lake Oroville near Highway 70.

Within a 25-mile radius of the Butte Creek Bundle there are three Lassen National Forest recreational facilities with a total of 45 camping units, 13 Plumas National Forest recreational facilities with a total of 170 camping units, and three California State Parks with 227 camp units. A private campground is located in Chico (Almond Tree RV Park) with 33 RV spaces (Automobile Club of Southern California, 1999).

People visiting the Butte Creek Bundle for recreation purposes can shop at the nearby communities of Paradise, Chico, Magalia, DeSabra, and Stirling City.

### ***DeSabra-Centerville (FERC 0803)***

In 1976, Pacific Gas and Electric Company created a recreation plan for the DeSabra-Centerville license. When Pacific Gas and Electric Company submitted an application for amendments to the license for the DeSabra-Centerville license in 1982 and 1986, it included the same 1976 Recreation Plan.

Humbug Road and Skyway Road provide the main access to the DeSabra-Centerville license, although some recreationists choose alternatively to reach Philbrook Reservoir from Butte Meadows

over the Bull Hill Road. Except for Skyway Road, which is paved to Inskip, access to the license is only possible over unsurfaced roads.

Table 4.6-12 provides information on the size of the Pacific Gas and Electric Company recreational facilities and numbers of visitors.

**Table 4.6-12 DeSabra-Centerville Recreational Facilities**

Name	Type of Facility	Number of Units	All on PG&E Co. Property? If no, list other owner	Visits in 1996	Comments
Located at Philbrook Reservoir					
Philbrook	Campground	20	no, USFS	3,476	Located in Lassen National Forest
Philbrook	Day use, picnic area	5	no, USFS	1,276	Located in Lassen National Forest
Philbrook	Day use, fishing area, boat ramp	N/A	no, USFS	3,100	Located in Lassen National Forest
Located near DeSabra Forebay					
DeSabra Forebay	Group picnic area	N/A	yes	300	
DeSabra Forebay	Fishing access	N/A			
Located within DeSabra-Centerville license					
Dispersed Use	Access areas	N/A		10,524	

Source: PG&E Co., 1999a.

**Reservoirs.** There are no key recreational reservoirs associated with the DeSabra-Centerville license. The three minor reservoirs are Round Valley Reservoir, Philbrook Reservoir, and DeSabra Forebay.

**Rivers and Streams.** There are no key recreational streams associated with the DeSabra-Centerville license.

**Minor Recreational Resources.** Philbrook Reservoir has a surface area of 173 acres, a storage capacity of 5,180 af, and drains an area of 4.9 square miles. The reservoir area is 190 acres. Water stored in the Philbrook reservoir is used beginning in July and the minimum pool is reached about October (PG&E Co., 1976b). In mid-August, its draw down affects recreation activities that require a large water surface area (PG&E Co., 1976a). Philbrook Reservoir's minimum pool sustains a fishery, which is annually supplemented with trout planted by CDFG.

Principally because of its isolation, Philbrook Reservoir is a terminal destination attraction. It is adjacent to several inventoried roadless areas. At Philbrook Reservoir the Fourth of July weekend is the peak-use weekend with 220 persons at one time estimated in 1974 (PG&E Co., 1976b). During the remainder of the season, average weekend and weekday people at one time was estimated to be 150 and 50 people, respectively. Heavy snowfall in the fall and winter forms a

snow pack, which normally lasts until June. As a consequence, the summer recreation season at Philbrook Reservoir is limited to about 90 days.

On the north shore of Philbrook Reservoir, Pacific Gas and Electric Company has provided water access and a day use area, including a car-top boat launch. Approximately ½-mile beyond the water access, Pacific Gas and Electric Company has provided a campground and a picnic area. Philbrook Campground offers 20 campsites and water access, as well as a car-top boat launch. Handicapped accessible campsites are also available at the Philbrook Campground.

The Pacific Gas and Electric Company provided picnic area at Philbrook Reservoir has 5 picnic units and offers water access.

Although the 1976 FERC-approved Recreation Plan for the DeSabra-Centerville license states that water-skiing is allowed on Philbrook Reservoir during the early part of the recreation season, it also noted that it may be necessary to restrict or curtail high-speed boating on the reservoir if the activity increased beyond the (then) current level. This was because of the reservoir's small capacity to accommodate power boating. Presently, high speed boating is still allowed at the reservoir.

Pacific Gas and Electric Company's plan for Philbrook Reservoir was designed to protect future options for recreation development of the Philbrook basin through low intensity development meant to minimize alteration of the reservoir's natural features. Because noise and visual impact was considered cumulative and even amplified by the reservoir's basin-like configuration, Pacific Gas and Electric Company recommended limiting ultimate reservoir use to 305 people at one time (PAOT). The recommended PAOT was determined by observing recreational use in 1974.

According to the FERC-required 1976 Recreation Plan, 44 summer homes are located on the eastern shoreline of the reservoir on lots leased from Pacific Gas and Electric Company. Although the long-standing leases were obtained under a program, which by 1976 had been discontinued, the homes are still in use. The Recreation Plan mentions two Lassen National Forest campgrounds: the eight-unit Philbrook Campground on the northwestern shore of the reservoir, and the large group campground on Philbrook Creek, 0.5 miles above the reservoir. The Philbrook Campground was experiencing erosion problems and an over-mature tree canopy, prompting recommendations to retire this campground. A California State Automobile Association (AAA) camping map does not indicate that these two campgrounds are still in operation. A site visit on July 30, 2000 confirmed that neither of these campgrounds is in existence at this time. However, a Lassen National Forest campground on the West Branch of the Feather River, approximately 8 miles west of Philbrook Reservoir, is still in operation. This West Branch Campground has 14 sites with picnic tables and fire rings. The campground is in disrepair and does not appear to experience much use.

Round Valley Reservoir has a storage capacity of 1,147 af and a surface area of 97 acres. It is drafted early and is normally empty by early September. Consequently, this reservoir has little attraction for recreation.

Philbrook and Round Valley Reservoirs provide water to downstream users. A consequence of downstream water use is that these two reservoirs are drawn down during the summer. This decreases the recreation potential of Philbrook and Round Valley Reservoirs. In order to maximize the DeSabra-Centerville license's downstream benefits, Pacific Gas and Electric Company does not propose to modify the operation of these two reservoirs during the summer months in order to enhance their recreation suitability in its FERC-approved Recreation Plan (PG&E Co., 1976b).

DeSabra Forebay has a surface area of 14.9 acres and is the regulating reservoir for the DeSabra Powerhouse. It has a storage capacity of 280 af. The reservoir area covers 17 acres. Water diverted from Butte Creek into the Butte Creek Canal, and from the West Branch of the Feather River into the Hendricks Canal flows into the DeSabra Forebay. The forebay is located on Paradise Ridge, a major geographical feature in Butte County. A pure ponderosa pine forest, situated on sites having well-drained volcanic soils, surround the reservoir, creating an attractive setting for recreation.

DeSabra Forebay is a popular day use recreation area in part because of its proximity to the town of Paradise. Group picnicking and fishing are the most frequent recreation activities at the forebay.

Fishing access, including handicapped accessible facilities, is provided by Pacific Gas and Electric Company at the west shore of DeSabra Forebay. CDFG plants catchable trout in the forebay. The organization picnic unit is available by reservation through Pacific Gas and Electric Company only.

Land surrounding the forebay is developed. In addition to the group picnic area and fishing access mentioned above, there is Camp 1, the operational headquarters for the DeSabra-Centerville license. Camp DeSabra is a private seventeen-cabin community with laundry facilities, a playground, and swimming pool operated and used by a Pacific Gas and Electric Company employees' association, and some rowboats for fishing are maintained at this camp. Two summer cabins and housing for resident Pacific Gas and Electric Company employees are also situated at DeSabra Forebay.

Pacific Gas and Electric Company has from time to time permitted the Butte County Dive and Rescue Team to use DeSabra Reservoir for a dive training class. This permission is purely informal, and is not required under Pacific Gas and Electric Company's FERC licenses or other regulatory requirements.

In the Centerville Powerhouse area, recreational uses include fishing and day use of undesignated trails.

In 1974 it was estimated that 5,000 user days were spent at DeSabra Forebay. The maximum recreation potential at this facility was reached in 1976 (PG&E Co., 1976a).

Butte Creek is popular with kayakers and tubers during the hot valley summers; however, private land predominates along Butte Creek in the DeSabra-Centerville license. This reduces the access to the creek for recreation. Between Centerville and Butte Meadows there is the Forks of Butte Creek Area managed by the Bureau of Land Management (California State University, Chico, 1999).

Whitewater activities occur in Butte Creek, from Doe Mill Road to the DeSabra Powerhouse. The whitewater level of difficulty is identified as "extreme" (Class VI on the International Scale of River Difficulty - the runs often exemplify the extremes of difficulty, unpredictability and danger). In the DeSabra Powerhouse to Chimney Rock reach, Butte Creek is not within an inner gorge and portages are easier. In this Class V (extremely long, obstructed or very violent rapids which expose the paddler to above average endangerment) reach of the river, about 24 kayakers use the river daily at most with favorable water conditions. The reach of Butte Creek from Chimney Rock to Helltown is rated as a Class IV (intense, powerful but predictable rapids) but requires a two-hour hike to the area where the run can begin and is not used much. From the Centerville Powerhouse to the Honey Run Covered Bridge, the reach is classified as Class III and is suitable for intermediate level kayakers.

The Butte Creek Hiking Trail, administrated by the BLM in cooperation with Pacific Gas and Electric Company, provides access to Butte Creek.

Spring-run Chinook salmon and steelhead trout, and to a lesser degree fall-run Chinook salmon, spawn in Butte Creek below the Centerville Head Dam. Please see the fisheries section (Chapter 4.4) for a discussion on the viability of historic salmon runs above the dam. However, due to the State and Federal listings of the spring-run Chinook salmon, Butte Creek is closed to fishing for trout and salmon all year from the confluence with the Sacramento River and in Butte Slough, the East and West Canals of the Sutter Bypass, and the Sacramento Slough upstream to the Pacific Gas and Electric Company Centerville Head Dam. Butte Creek is open all year to fishing for other species from Oro-Chico Bridge crossing to the Sacramento River and in Butte Slough, the East and West Canals of the Sutter Bypass and the Sacramento Slough. (Section 7.50 (b) (32) on page 16 of the Sport Fishing Regulation booklet.)

Other recreational uses in the DeSabra-Centerville license include the use of DeSabra-Centerville license canals for recreation by local residents. This use is mostly dispersed and sporadic. Hiking and fishing are the only activities that appear well suited to the linear configuration of the canals.

***Watershed Lands Associated with DeSabra-Centerville.*** The Watershed Lands associated with the DeSabra-Centerville license provide little in terms of formal or informal recreational opportunities. Local anglers occasionally utilize a parcel of land just north of DeSabra Forebay because the Butte Canal bisects this parcel. The trail that parallels the canal provides fairly easy pedestrian access.

Local anglers attempting to access Butte Creek sometimes cross the parcels south of the DeSabra Powerhouse. Access is extremely difficult because of the topography and lack of trails or roads.

***Lime Saddle (Non-FERC)***

There are no developed recreational facilities associated with the Lime Saddle project.

***Reservoirs.*** There are no key recreational reservoirs associated with the Lime Saddle Powerhouse. Kunkle Reservoir is a minor recreational resource.

***Rivers and Streams.*** There are no key recreational streams associated with Lime Saddle.

***Minor Recreation Resources.*** Kunkle Reservoir holds water diverted from the West Branch of the Feather River into the Upper Miocene Canal. It has a storage capacity of 253 af, and drains an area of 1.06 square miles. The reservoir area is 18 acres. Although Pacific Gas and Electric Company gates and locks the dam, locals are able to put light boats in on the public side of the locked gates. Although Pacific Gas and Electric Company does not encourage this activity, company representatives for this area do not actively discourage it either. Local residents also gather along the banks of the reservoir for passive recreation purposes.

***Watershed Lands Associated with Lime Saddle Powerhouse.*** There is a parcel of Watershed Land of about six acres associated with the Lime Saddle Powerhouse. This parcel supports no developed recreational facilities and may support limited dispersed recreation.

***Coal Canyon (Non-FERC)***

***Reservoirs.*** There are no key recreational reservoirs associated with Coal Canyon.

***Rivers and Streams.*** The tailrace of Lime Saddle is the Middle Miocene Canal, which takes water to the Coal Canyon Powerhouse for Coal Canyon facilities. There are no developed recreational facilities associated with Coal Canyon.

***Watershed Lands Associated with Coal Canyon.*** The Watershed Lands associated with Coal Canyon are located near Lake Oroville, adjacent to the Thermalito Diversion Pool. The Thermalito Diversion Pool is the afterbay for the Kelly Ridge Powerhouse located just below the Oroville Dam and is operated by the Oroville-Wyondotte Irrigation District. The lands surrounding the Thermalito Diversion Pool are operated and maintained by the California Department of Parks and Recreation (CDPR). Recreational opportunities on the Watershed Lands are limited to low dispersed recreational use because there is no direct access to the Thermalito Diversion pool.

**4.6.4.3 Drum Regional Bundle**

**Regional Setting**

This section describes the recreational facilities and resources associated with Pacific Gas and Electric Company’s hydroelectric facilities proposed for ownership transfer in the Drum Regional Bundle. Specifically, this section focuses on describing recreation activities, facilities and improvements, and use patterns at recreation areas (i.e., reservoirs, rivers and streams, and Watershed Lands) potentially affected by the transfer. Additionally, the regional recreational setting in which the recreational facilities and resources are located is described by Bundle. Table 4.6-13 outlines the four bundles in the Drum Regional Bundle: the North Yuba, Potter Valley, South Yuba, and Chili Bar.

The North Yuba River Bundle includes the Narrows license. Narrows is located below Englebright Dam on the Yuba River. This area is located about 20 miles east of Marysville in a relatively undeveloped portion of Nevada and Yuba County, approximately 12 miles west of Grass Valley and approximately three miles northeast of the unincorporated community of Smartville. The northwest boundary of the project is located on the Nevada and Yuba County line, covering a range of 300 to 900 feet elevation. The project lies within the Yuba River basin downstream of the confluence of the South Fork, Middle Fork, and North Fork Yuba Rivers, and approximately 25 miles upstream of the confluence of the Yuba River with the Feather River. Land use in the vicinity of the project is characterized as recreational and open space. Land use designations are designated for low-intensity uses such as agriculture, recreation and open space. The project is located on the steep-walled canyon of the Yuba River, which has carved through metamorphic rocks in the western foothills of the Sierra Nevada.

**Table 4.6-13 PG&E Co. Hydroelectric Licenses within the Drum Regional Bundle**

Bundle:	License:
Bundle 9: North Yuba River	Narrows (FERC 1403)
Bundle 10: Potter Valley	Potter Valley (FERC 0077)
Bundle 11: South Yuba-Bear River	Drum-Spaulding (FERC 2310)
Bundle 12: Chili Bar	Chili Bar (FERC 2155)

The Potter Valley Bundle is located between the heart of the Coast Range Mountains in Lake County and Potter Valley, an open inter-mountain agricultural valley in Mendocino County. Bundle facilities and lands are located on and near the Eel River and the East Fork Russian River. The closest communities are Potter Valley located about 4 miles from the Potter Valley Powerhouse and about 12 miles from Lake Pillsbury (see Figure 4.6-7). The terrain is typical of the rugged Coastal Range Mountains with long, steep, and often unstable slopes from the ridges to river bottoms. Land uses include timber harvest, grazing, ranching, rural residential, rural community, resort, intensive agriculture, and developed and dispersed recreation. The upstream portions of the

bundle contain an area of intermingled Mendocino National Forest lands and private lands under the jurisdiction of Lake County. In the downstream portion of the license, land is in private ownership under the jurisdiction of Mendocino County. Recreational activities in the license vicinity include general reservoir use, general forest use, dispersed recreation, wading and swimming in streams and lakes, whitewater boating, stream and lake angling, resort use, OHV, hiking and biking, day-use, and camping.

The South Yuba River Bundle includes one FERC license, the Drum-Spaulding. It is located in portions of both Placer and Nevada Counties and extends along Interstate 80 (I-80) from Auburn to Donner Summit on the western slope of the Sierra Nevada. It begins on the South Yuba River near Donner Summit and ends at Folsom Lake on the American River, covering a range of 8,000 to 300 feet. Most of the license's forebays, afterbays, and powerhouses, as well as two recreational facilities, lie outside the Tahoe National Forest, north of the I-80 corridor near Auburn. The license consists of an extensive network of hydraulically linked facilities located within Yuba River, Bear River, Deer Creek and American River Basins, including multiple interbasin water transfers.

This region has many lakes, streams, and forest lands that all contribute to an important recreational area. The Pacific Crest Trail and the Eagle Mountain Nordic Cross-Country Ski Area are available in the vicinity of the Drum-Spaulding project. Donner Lake and Lake Tahoe are within about 15 to 40 miles, respectively, of the license and are the major recreational attractions for the region. In the winter, many people visit the alpine and cross-country ski areas close to Donner Lake and Lake Tahoe. During the summer, this same region attracts many hikers, bikers, boaters, picnickers and others. This region of the Sierras is among the most popular in California for its variety of recreational activities available to the public. The Drum-Spaulding license facilities also support numerous recreational facilities, primarily in association with FERC-licensed reservoirs. The towns of Nevada City, Grass Valley, Auburn, Colfax, and Truckee all have businesses that are partially supported by those visiting the recreational resources in the Drum-Spaulding FERC-licensed lands.

The Chili Bar Bundle includes a single reservoir, Chili Bar Reservoir, and the Chili Bar Powerhouse located at the base of Chili Bar Dam. Chili Bar Reservoir is located at about 1,000 ft. elevation in a steep canyon setting about three miles north of Placerville and Interstate 50.

The portion of the South Fork of the American River influenced by Chili Bar is a 21-mile reach located in canyon and open valley settings running roughly parallel to Interstate 50 about five miles north of that major highway. Landownership is mostly private with considerable Bureau of Land Management public lands and a small amount of State Park land. This reach of river is dominated by rural residential development, ranching and grazing, river recreation, and recreational uses oriented to gold mining history. From a visitation and commercial activity perspective, it is the most important whitewater recreational resource in the state.

### *Mendocino National Forest*

Mendocino National Forest has a Land and Resources Management Plan (USFS 1995) in place that guides activities on the forest lands. Within this document, subsections focus directly on Lake Pillsbury (Management Area 11) and the Eel River below Lake Pillsbury to the Mendocino National Forest boundary (Management Area 10). Mendocino National Forest intends to implement watershed improvements within these two areas as described by the Lake Pillsbury Basin Sediment Task Force to control sediment input to Lake Pillsbury. Additionally, minimizing sediment inputs from off-highway vehicle (OHV) use is to be a focus of activity.

### *Tahoe National Forest*

The Tahoe National Forest is managed by the United States Forest Service (USFS) and has a Land and Resource Management Plan (LRMP) that guides activities on forest lands. The LRMP provides direction for planning and conducting resource management activities on National Forest land. The goals of these plans are, among others, to monitor and protect habitat for federally listed threatened, endangered, and candidate species, provide for continued use and new development of hydroelectric facilities, and expand recreational facilities and opportunities.

### **Bundle 9: North Yuba River**

#### *Narrows (FERC 1403)*

The North Yuba Bundle includes one FERC-licensed project: the Narrows license. Narrows is located below Englebright Dam on the Yuba River. This area is located about 20 miles east of Marysville.

Within the Narrows license, the terrain of the Yuba River is extremely rugged, with steep and rocky soils that limit recreational development and use. No developed public recreational facilities are provided as part of the license. The only license feature of recreation interest is the Narrows Powerhouse Tramway Trail. The trail was developed for emergency use in case the tram that leads to the Powerhouse failed. Recreationists occasionally used the trail to access areas for rafting, recreational mining, or fishing along the Yuba River. A locked gate prohibits access, and trail maintenance was stopped due to public and employee safety concerns. Where public safety is not a concern, Pacific Gas and Electric Company allows the public to have reasonably free access to license waters and adjacent lands for recreational purposes, according to the requirements of FERC License Article 17.

In the region, the USCOE has extensively developed recreational opportunities around Englebright Reservoir. Pursuant to FERC License Article 409, Pacific Gas and Electric Company entered into a joint funding agreement with USCOE and Yuba County Water Agency to construct and install signs and interpretive displays at Englebright Reservoir. Pacific Gas and Electric Company has no maintenance or operations responsibility for recreational facilities around the reservoir.

**Reservoirs.** Englebright Lake (see Figure 4.6-8) is located about 20 miles east of Marysville and is about 250,000 acre-feet in capacity and about 815 surface acres. The lake is under the jurisdiction of the United States Army Corps of Engineers (USCOE). There are two boat ramps, one located near the dam (Narrows Ramp) and the other located at Skipper's Cove (Jill Miller Ramp), a full service marina. The bottom of boat ramp elevations are 500 ft and 516 ft. respectively. The lake has 17 boat-in campsites. The lower portion of the lake is available for waterskiing and jet skis and the area above Upper Boston is not available to waterskiing to provide better opportunities for anglers.

**Rivers and Streams.** The Yuba River from Narrows Powerhouse to Marysville is accessible from a small road on the north side of the Highway 20 Bridge. There is informal parking available for about 20 cars. Trails up and down the river provide access to the many pools and riffles. The area nearest the bridge receives the most use. Anglers willing to hike for 20 minutes in either direction find areas with fewer visitors and perhaps better fishing. During the spring, summer and early fall, rainbow trout fishing is the primary activity along the river. There is some swimming and picnicking activity, but no evidence that the area is used for camping.

This section of the Yuba River provides a unique opportunity for wild steelhead and salmon fishing. In October, November, and December salmon run up river and in January and February, depending on the flow of the river, steelhead run up the river to spawn. This steelhead and salmon fishery is self-sustaining and provides a unique opportunity to fish for wild steelhead. Steelhead and salmon runs on the Feather and Sacramento Rivers are supported by hatchery fish. Wild steelhead and salmon are typically more difficult to catch and are a harder fighting fish. With limited opportunities for this type of fishing in California, the Yuba River stands out for this recreational opportunity.

Boating on the Yuba River occurs occasionally from the Narrows down to Marysville. Rafters and kayakers starting at the Narrows have been known to paddle from the south to the north side of Englebright Dam on the lake and then portage boats down an access road. The river is not heavily used for white-water boating. Drift boats for angling are put in from private lands about four miles up stream from the Highway 20 bridge. A more accessible put-in site for kayaks, canoes and tubes is at the Highway 20 crossing. From the bridge crossing it is necessary to portage around the Daguerre Dam before reaching Marysville.

**Watershed Lands Associated with Narrows.** There are two parcels, one within FERC boundaries and one outside FERC boundaries, associated with the Narrows license. Though the parcels are located adjacent to the Yuba River and directly below the dam, there are no recreational opportunities associated with the parcels. Public access to these parcels is restricted due to the fact that they are surrounded by privately-owned land with gated access roads that are not open to the public. In addition, most of these parcels of land are located on an extremely steep portion of the Yuba River Canyon.

**Bundle 10: Potter Valley**

***Potter Valley (FERC 0077)***

The Potter Valley Bundle is composed of a single licensed license, Potter Valley (FERC 0077). Pacific Gas and Electric Company stores winter and spring runoff in Lake Pillsbury, behind Scott Dam, for gradual summer releases to the Eel River and diversion. Diversion occurs about 12 miles downstream at Cape Horn Dam and Van Arsdale Reservoir. At this facility, which serves as a forebay, water is diverted by tunnel to the Potter Valley Powerhouse, which then releases water to the East Fork Russian River in Potter Valley, Mendocino County. This released water is diverted locally for irrigation and also flows through the East Fork Russian River to Lake Mendocino. Lake Mendocino is operated by the USCOE. Water from Lake Mendocino is stored for gradual release to the Russian River for irrigation and domestic water supplies in the Mendocino, Sonoma and Marin County areas.

Table 4.6-14 outlines the recreational facilities associated with the Potter Valley license.

**Table 4.6-14 Potter Valley Recreational Facilities**

Name	Type of Facility	Number of Units	All on PG&E Co. Property? If no, list other owner	Visits in 1996	Comments
Located in Eel River Area					
Trout Creek	Campground	15	Yes	1,960	
Eel River Visitors Center	Day Use	N/A	Yes	792	Informational kiosk
Located in Lake Pillsbury Area					
Pogie Point	Campground	45	No, USFS	4,712	Entirely on USFS lands
Fuller Grove	Campground	30	Yes	7,524	
Fuller Grove Group	Campground	50 People	Yes	2,250	
Navy Camp	Campground	20	No, USFS	828	50/50 split between USFS and PG&E Co. lands
Sunset	Campground	54	No, USFS	7,716	Entirely in USFS lands
Oak Flat Overflow	Campground	8	No, USFS	No information	Entirely on USFS lands; operated under Granger-Taye Permit
Fuller Grove	Day Use, Boat Launch	N/A	No, USFS	4,431	50/50 split between USFS and PG&E lands
Pillsbury Pines	Day Use, Boat Launch and Picnic Area	10	Yes	988	
Dispersed Use	Access Areas	N/A		8,594	

Source: PG&E Co., 1999a

**Reservoirs.** Lake Pillsbury and Van Arsdale Reservoir are the only reservoirs in this license. Lake Pillsbury is a major recreational resource with many developed recreational facilities. Van Arsdale Reservoir is a small facility with no developed recreational resources but with notable informal

recreational uses. Although powerhouse releases flow into Lake Mendocino, the volume of this reservoir is huge compared to the potential releases.

***Lake Pillsbury.*** Lake Pillsbury is an important lake recreational resource for the San Francisco Bay Area. Access is relatively difficult over steep, narrow, dirt roads but many trailered boats are driven to the lake. Many are placed at the lake for the season and extended stays while others are for daily or short term uses. There are six USFS campgrounds around the lake with 154 improved sites, 12 unimproved sites and a group site with a capacity of 50 users. Two USFS campgrounds are adjacent to improved public boat launching facilities. There is one USFS picnic area with six sites. Lake Pillsbury Resort is a full service facility with 34 improved campsites and eight cabins, boat rentals, boat launch, and marina facilities. Inspection evidence indicates that all the campgrounds and picnic areas are heavily used except perhaps one 20-site campground. There are three summer home areas on either USFS tracts or private lands. The private land area has one informal boat launch and the 71-cabin Squaw Creek Tract has a private boat launch and a floating dock with 68 boat slips. The lake offers full reservoir recreational opportunities and activities with water-contact, riparian, and angling opportunities at nearly all of the lakeside development and public access areas. Boating, including powerboating, boat angling, and sailing, is a primary activity and many campground users have their boats beached along the shoreline of the camps. A small aircraft airport also operates near the lake.

There is no existing information on the direct recreational use consequences of various levels of water surface drawdown at Lake Pillsbury; in recent years there has not been an elevation during the main recreation season that has created any recreational use problems. Information from USFS personnel indicated that there may be a direct relationship between degree of drawdown and diminished recreational values but uses may stay at high levels until the boat ramp become stranded (USFS, 2000q; and USFS, 2000k). FERC reports that swimming, boating, and camping experiences are progressively degraded, as mudflats become more extensive (FERC, 2000); however, these conclusions are not supported by reference or by reported study observations. The USFS has surveyed the toes of the boat ramps and found their low elevations to be 1815 ft for the Sunset ramp and 1811.6 ft. for Fuller ramp (USFS, 2000k). The Fuller ramp received more than 90 percent of the public boat launching activity.

Pacific Gas and Electric Company reports that in 1996 there were a total of 23,030 visits to the formal public campgrounds on the lakeshore. They also report 5,419 visits to two public boat launch and day-use areas, however, a significant number of these visits may also be counted in the campground numbers. They also report 8,594 dispersed use activity visits to access sites. Pacific Gas and Electric Company has not reported the use at the one informal campground, Oak Flat, located on the north shore. On-site inspection at this facility indicates that on weekend-days there could be 8-12 occupied sites with 24-36 users. Uses of this campground include some non water-based recreation activities, particularly hang-gliding. The USFS reports that over the last three

years, total recreational uses at Lake Pillsbury have been about 400,000 Recreation Visitor Days, or (RVDs) (USFS, 2000k).

**Van Arsdale Reservoir.** Van Arsdale reservoir is a small, narrow water body progressively filling with gravel materials transported by the Eel River. The south bank area of the reservoir is Pacific Gas and Electric Company land and the site of an abandoned and torn-down lumber mill; this area is not fenced but is posted for No Trespassing. The shoreline of the lower two-thirds of the reservoir is dominated by thick riparian vegetation which precludes access and shore uses. The shoreline of the upstream end of the reservoir is dominated by large gravel deposits and is accessible at the bridge crossing and the bank of the north shore. No developed recreational facilities exist at the reservoir, however, the broad gravel shoreline along the upstream end is used for informal car camping, OHV, water contact, day-use, and angling.

On-site inspection indicates that on weekend-days there could be 2-4 car camps with 6-16 users, and about 20 day-users engaged in angling, OHV, and water contact recreation.

**Lake Mendocino.** Lake Mendocino, operated by the USCOE, is a full reservoir recreation facility. There are four USCOE campgrounds with 289 improved sites, 15 boat-in unimproved campsites, and three group campsites with a capacity of 360 users. Associated with the campgrounds, there are day-use/picnic areas with 100 sites. There are two boat launch sites, a full service marina, and boat rentals. Activities include angling, power and non-power boating, and water contact recreation. The mouth of the East Fork Russian River is the take-out location for casual floating on that stream. At elevation 732 ft. boating navigational hazards begin to become influential and from that elevation to elevation 729 ft. uses can be expected to decline by about 25 percent, and at elevation 728 ft. the boat ramps become unusable and visitation at the facility can decline by 50 percent (USCOE, 2000). Due to local terrain, these boat ramps cannot be practically extended. This is also the elevation when irrigation pumps cannot be used and maintenance of the facility becomes difficult.

The USCOE reports annual visitation ranging typically from 800,000 to 825,000 users, 95 percent of which are water-based recreation users. It is the heaviest used USCOE facility in the Southwest Division of the USCOE, which covers all of California and New Mexico, and portions of Arizona, Utah, and Colorado.

**Rivers and Streams.** The stream reaches that are influenced by license flows include the Eel River between Lake Pillsbury and Van Arsdale Reservoir, a substantial reach of the Eel River below Cape Horn Dam, and a reach of the East Fork of the Russian River between the Potter Valley Powerhouse and Lake Mendocino. Another river reach of importance is the Russian River below Lake Mendocino.

**Eel River: Lake Pillsbury to Van Arsdale Reservoir.** This nine-mile reach of the Eel River has good access near both of the reservoirs but is reasonably isolated throughout most of the reach. In

the upstream portion of this river reach, from Scott Dam to the area around Elk Mountain Road, recreational uses include informal car camping on river gravels, informal group camps and activities, water contact, angling, and day-uses. In the lower three-mile section of this river reach, roughly between Bucknell Creek and Van Arsdale Reservoir, uses include informal car camping on river bars, day-uses, water contact, angling, and casual floating. Pacific Gas and Electric Company owns the Trout Creek campground with 15 improved car campsites and 6 improved walk-in sites. Recreation at this campground includes riparian use (stream-side hiking), casual floating, water contact, and angling. The reach from Elk Mountain Road to Van Arsdale Reservoir is a 8.8 mile Class III whitewater raft and kayak run known as the Pillsbury Run. Often boaters will take-out at Bucknell Creek, making it a 5.7-mile run. The boatable flow ranges are considered to be from 300-6,000 cfs: 300-800 cfs, Class II/III; 800-2,000 cfs, Class III/IV; 2,000-6,000 cfs, Class IV/V. Optimum flow for kayaking is about 1,500 cfs (Holbek and Stanley, 1998; and Cassidy and Calhoun, 1994) but suitable flow conditions for lower skilled kayakers can be 300 cfs (Schwind, 1974). It is a good rafting and kayaking resource at higher winter and spring flows when Pillsbury is spilling, and may be usable for lower Class III kayaking and inflatable kayaking in the summer on 200-300 cfs. Presently local kayakers consider 500 cfs to be the minimum flow for hardshell kayaks while flows for rafting are not adequate until the 1,000-2,000 cfs range (Futscher, 2000; and Derry, 2000).

On-site inspection indicates that weekend-day uses in the vicinity of Scott Dam may include 2-5 informal camps with 6-20 users, and as many as 10-15 day-users engaged in riparian, water-contact, and angling activities. Uses of the channel area and stream flows from the Trout Creek Campground may range to 20 users on weekend-days also engaged in riparian, water-contact, and angling activities. Downstream of Trout Creek Campground, weekend-day uses may include 3-7 occupied informal camps on gravel bars or adjacent terraces with 10-30 users, and 10-30 day-users, all engaged in riparian, water-contact, and angling activities. Boating uses are unknown, but may include 5-20 users on weekend-days when good boatable flows are present and the weather provides adequate recreation values.

Boating uses are unknown but may include 5-20 users on weekend-days when good boatable flows are present and the weather provide adequate recreation values. It has been estimated that annual boating use may be about 250-300 visits (Derry, 2000). Use levels are dependent on release patterns from Scott Dam both in magnitude and season, and uses are further affected by flow reliability and flow information availability. In recent years release pattern changes may have reduced boating use levels, particularly in the fall season.

**East Branch Russian River; Potter Valley Powerhouse to East Side Potter Valley Road Bridge.**

This stream reach is from the Potter Valley Powerhouse through to the East Side Potter Valley Road Bridge over the East Branch Russian River, about 6.5 mi. The stream is only accessible at several road crossings, with the exception of a small, developed area near the town of Potter Valley, which provides several picnic sites and water contact access to the stream, little recreational

activities have been observed. Although the stream would appear viable for canoeing and other river recreational activities, it is sharply incised into the valley floor, has a thick riparian closure, is essentially land locked by private property, and has several flat crested weirs. These characteristics make boating and other access oriented recreational activities not practical. Numerous private residences are located close to the stream and it may provide recreational benefits to those owners.

***East Branch Russian River; East Side Potter Valley Road Bridge to Lake Mendocino.*** From the East Side Potter Valley Road Bridge to the inflow at Lake Mendocino, the East Branch Russian River has a steeper gradient and is characterized by pools, riffles, small rapids, and an open riparian corridor. Along East Side Potter Valley Road there are several large and small turnouts and access trails to the river. Site evidence indicates that this stream is used for angling, riparian, water contact recreation, and occasionally for casual floating. On-site inspection indicates that flows adequate for casual boating may be in the 30-150 cfs range, this is however, not confirmed by on-site boating.

On-site inspection indicates that weekend-day uses of this reach may be as high as 30 users mostly engaged in either angling or riparian and water contact activities associated with local teenagers. Floating uses may only range to 2-5 users on weekends when conditions are favorable.

Local kayakers report that they have been using the lower portion of this stream reach from “McKay Park” to Lake Mendocino for many years and for the past 10 years or so there has been a slalom race in this area. The flows reported as adequate for slalom and down river kayaking is about 200 cfs. The use of this resource is in the afternoons and evenings of almost any day when adequate flows are present and makes a good after-work resource. The portion of the channel between Potter Valley and “McKay Park” is not usually boated because of very hazardous conditions near an old quarry (Derry, 2000).

On-site inspection indicates that weekend-day uses of this reach may be as high as 30 users mostly engaged in either angling or riparian and water-contact activities associated with local teenagers. Floating uses may only range to 2-5 users on weekends when conditions are favorable. Kayaking uses are estimated at about 40 users at the annual slalom events and about 250-300 boaters annually. There are also about 100-150 casual floaters annually (Derry, 2000).

***Russian River: Downstream of Lake Mendocino.*** This reach of the Russian River is influenced by license operations, which directly relate to the quality of recreational resources that are provided. The Russian River is augmented by Potter Valley license diversions, and provides significant aesthetic and recreational benefits to the region. The diversions provide water to support the Russian River’s summer flow. This flow supports a wide variety of summer recreation activities, including fishing, camping, boating, canoeing, and swimming. Lake Mendocino’s recreational activities also depend directly and indirectly on flows through the Potter Valley Powerhouse. These aesthetic and recreational benefits help support water-based recreation and tourism in Lake and Sonoma counties.

**Eel River: Downstream of Cape Horn Dam.** Project flows can influence flows on the main Eel River through to the ocean. License flows in conjunction with downstream tributary inflows to the main Eel River influence the types, levels of use, and seasonality of recreational activities. Based on these considerations, the Eel River will be discussed in terms of three main sections; Cape Horn Dam to Outlet Creek, Outlet Creek to Alderpoint, and the Eel River below Alderpoint.

**Cape Horn Dam to Hearst.** This reach of the Eel River is through isolated rural timber and range lands with occasional rural residential establishments. Within the first mile below Cape Horn Dam there are several residences on both banks however those on river right are isolated from the channel by steep inner canyon gorge topography. Recreational uses include angling, water contact, riparian, and casual floating. These uses occur mostly just below the dam where the only publicly accessible lands in the vicinity of the dam are located. This is also one put-in for an 11 mi. Class II whitewater boating resource. An alternative put-in is downstream about 1-2 miles at the end of the county road on the south side of the river. This is mainly a canoe and at higher flows a raft resource. Through to about a mile below the lower put-in willows and brush dominate the channel due to a lack of flushing flows. Local boaters report that canoes can be guided through this brush with some care and at higher flows route for rafts open up (Derry, 2000). Canoe flows needs are reported as roughly 300 to 1000 cfs with rafts, a secondary use, from about 700 to over 5000 cfs (Derry, 2000; Schwind, 1974).

Use levels vary with the water year with higher uses when the days are longer and warmer in the summer season. However present hydro-operations limit use mostly to the late spring, and then, due to unreliability of flows, potential uses are depressed. Annual boating uses could presently average about 100 visits (Derry, 2000).

On-site inspection indicates that weekend-day non-boating uses may include 5-10 day-use users just below the dam engaged in angling, riparian, and water-contact activities. In addition there may be as much as 10-20 residential users of the channel and stream flows.

**Hearst to Outlet Creek.** This reach of the Eel River is through isolated rural timber and range lands with occasional rural residential establishments. It is considered by many boaters as the best whitewater resource on the Eel River due to isolation and scenic quality. The recreation uses on this reach are mainly C-II+ /III whitewater boating. It is a 17 mi. run for canoes, kayaks and rafts. At lower flows it is usually a 2-day trip but at flows in the 1000-15000 cfs range a 1-day trip is easily accomplished (Futscher, 2000; Derry, 2000). Flow needs are reported to be 300 cfs for kayaks and 500 cfs for rafts put to about 5000 cfs. Flows above 1000 are preferred as they offer a 1-day trip option. Camping is available but only on private lands; to date no conflicts have been reported (Derry, 2000).

Use levels vary with the water year with higher uses when the days are longer and warmer in the summer season. However present hydro-operations limit use mostly to the late spring, and then,

due to unreliability of flows, potential uses are depressed. Annual boating uses could presently range between about 150 to 250 visits (Futscher, 2000; Derry, 2000).

***Outlet Creek to Dos Rios.*** This reach of the Eel River includes the tributary flows of Outlet Creek. Recreational uses include angling, water contact, riparian, and Class III whitewater boating. The Dos Rios Run is a 6.3 mi. Class III resource used mostly by kayakers because of difficult put-in access and a run too short for satisfactory rafts. This run is not found in published information but from on-site inspections it appears that reasonable kayaking flows could range from 700 to 2,000-5000 cfs for boaters with appropriate skill levels. The main boating attraction is hydraulic intensity and play boating. Below 500 cfs there are a few casual floaters. Uses are very low perhaps in the 100-200 boaters annually range but this resource has recently become more popular with regional boaters.

***Dos Rios to Alderpoint.*** This reach of the Eel River includes the tributary flows of Middle Fork Eel River and the North Fork Eel River. It is through relatively isolated rural timber and range lands with occasional rural residential establishments and the small residential communities of Dos Rios and Alderpoint. Recreational uses include angling, water contact, riparian, and Class III whitewater boating. The Alderpoint Run is a 46 mi. Class III resource, used mostly by kayakers and rafters. The useable flow ranges have been listed as from 500-800 cfs to about 20,000 cfs with optimum flows for kayaks as 5,000 cfs (Holbek and Stanley, 1998; and Cassady and Calhoun, 1984). There is currently commercial whitewater boating but it is presently a low volume operation due to the typically early season occurrence of less than about 1,000 cfs. This is about the minimum usable flow for commercial operations due to on-river trip logistics and client satisfaction issues, although rafting can occur at lower flows (Aurora River Adventures, 2000). The use of these runs occur primarily in spring and sometimes early summer when flows are appropriate. Natural tributary flows in conjunction with Cape Horn Dam releases provide these flows. Whitewater boating use levels are unknown but are estimated to be 100-400 annual users.

***Eel River below Alderpoint.*** This reach of the Eel River includes the tributary flows of many smaller streams and the South Fork Eel River and the Van Duzen River. This reach runs through relatively isolated rural timber and rangelands with occasional rural residential establishments and the small residential communities of Fort Seward and some larger towns along Highway 101. Recreational uses include angling (mainly anadromous), water contact, riparian, and Class I/II boating including canoeing, driftboating, and power boating. The use of these runs occur primarily in spring and early summer when flows are appropriate. Natural tributary flows in conjunction with Cape Horn Dam releases provide these flows. All forms of water-related recreation on this reach may exceed 10,000 annual users.

***FERC-Licensed Areas.*** The FERC-licensed areas include lands around Lake Pillsbury and Scott Dam, land along the Eel River from Trout Creek to Van Arsdale Reservoir, lands around Van Arsdale Reservoir and Cape Horn Dam, and lands around the Potter Valley Powerhouse.

**Lake Pillsbury Lands.** These lands include intermittent parcels around the shore and are usually limited to the immediate shoreline area except along the northern shore where these lands extend significantly back from the shore. Many, but not all, of the public FERC recreational facilities around Lake Pillsbury are on these lands. All of these facilities, including those not within FERC-licensed areas, are being operated and managed by Pacific Gas and Electric Company under a special use permit from the USFS. Under prior actions, the USFS has recreational access and development right easements on about 1,000 acres of Pacific Gas and Electric Company FERC-licensed areas (USFS, 2000k). The use levels on these lands are a major portion of those listed above under Lake Pillsbury. Additional activities on these lands include camping.

**Eel River Areas.** These lands include the active channel of the Eel River and limited adjacent lands along about 2 miles of the Eel River from just above Trout Creek to the county road bridge at Van Arsdale Reservoir. These lands include the Trout Creek Campground and nearly all the activities along the Eel River. The Trout Creek Campground has 15 developed units and about six walk-in sites. Pacific Gas and Electric Company reports 1996 uses at that facility as having 1,960 visits. The activities and use on these lands and use levels are presented above under “Eel River; Lake Pillsbury to Van Arsdale Reservoir.” These lands are accessed along USFS Road M8 and is highly posted as running through private lands, no trespass and litter reporting.

**Van Arsdale Reservoir/Cape Horn Dam Areas.** These lands include the shoreline of Van Arsdale Reservoir from the county road bridge to Cape Horn Dam and downstream about 100 feet. These lands are unfenced and posted as private-no trespass in places. The uses of these lands are presented under “Van Arsdale Reservoir” and “Eel River; Cape Horn Dam to Outlet Creek,” above.

**Potter Valley Powerhouse Areas.** These lands are immediately adjacent to the Powerhouse structure. They provide visual but not physical access to flows below the Powerhouse, and also there is a picnic area with two sites. Uses are very limited; onsite inspection indicates that weekend-day uses could be 0-4+ users.

**Watershed Lands.** Pacific Gas and Electric Company Watershed Lands include lands around Lake Pillsbury and Scott Dam, land along the Eel River from Scott Dam to Van Arsdale Reservoir and lands around Van Arsdale Reservoir and Cape Horn Dam.

**Lake Pillsbury Lands.** These lands include intermittent parcels around the lake as extensions landward from the FERC-licensed areas. These lands are most often limited in extent and intermingle with USFS lands. Recreation use levels on these lands are unknown but may include dispersed hiking, hunting, and unregulated OHV.

**Eel River Lands.** These lands include the active channel of the Eel River and about a total of 5,000 acres that extend from 1/4 mile to two miles from the river. All lands except about 1/8 mile of the Eel River between these two facilities are under Pacific Gas and Electric Company ownership. The

#### 4.6 Recreation

uses of these lands are listed above under Eel River; Lake Pillsbury to Van Arsdale Reservoir, and Eel River FERC-licensed areas. The uses of these lands are limited to land-based activities and access to water-based activities. In addition to the uses listed above under Reservoir Streams and FERC-licensed areas, of special note are the uses on Watershed Lands downstream of the Cape Horn Dam. In the vicinity of the stream gauge on these lands is the only public access to the Eel River below Van Arsdale Reservoir in the license. This is the access point for any boaters using the Cape Horn Dam to Outlet Creek reach of the Eel River (see above).

#### **Bundle 11: South Yuba River**

##### ***Drum-Spaulding (FERC 2310)***

The South Yuba River bundle includes one FERC-licensed project, the Drum-Spaulding. This license is located in the upper portions of the South Yuba River and Bear River watersheds, which are contained in the Nevada City Ranger District of the Tahoe National Forest. The resources associated with this license are outlined in Table 4.6-15, and located about one to two hours east of the City of Sacramento and accessible from Interstate 80.

**Table 4.6-15 Drum-Spaulding Recreational Facilities**

Name	Type of Facility	Number of Units	All on Pacific Gas and Electric Company Property? If no, list other owner	Visits in 1996	Comments
Located along South Yuba River and Fall River Area					
Lake Spaulding Campground	Campground	25	Yes	5,224	
Lodgepole	Campground	35	Yes	8,268	Access to facility across USFS lands
Kidd Lake Group Camp	Campground	10	Yes	2,620	Access to facility across USFS lands
Bear Valley	Day Use, Picnic Area				
Lower Feeley (Carr Lake) Dispersed Camping	Informal campground	12	No, USFS	10,178	Joint PG&E Co. and USFS owned. Access to facility across USFS lands
Located in Lindsey Lake Area					
Upper Lindsey Lake Dispersed Camping	Informal campground	3	Yes	122	Access to facility across USFS lands
Middle Lindsey Lake Dispersed Camping	Informal campground	3	Yes	621	Access to facility across USFS lands
Lower Lindsey Lake Dispersed Camping	Informal campground	6	Yes	3,765	Access to facility across USFS lands
Culbertson Lake Dispersed Camping	Informal campground	4	Yes	198	Joint PG&E Co. and USFS owned. Access to facility across USFS lands
Lower Rock Dispersed Camping	Informal campground	4	Yes	267	Access to facility across USFS lands
Upper Rock Dispersed Camping	Informal campground	3	Yes	190	Access to facility across USFS lands

**Table 4.6-15 Drum-Spaulding Recreational Facilities**

Name	Type of Facility	Number of Units	All on Pacific Gas and Electric Company Property? If no, list other owner	Visits in 1996	Comments
Located in Deer Creek Area					
Deer Creek Fishing Access	Day Use, 5 Picnic Tables	5	Yes	460	Access to facility across USFS lands
Located in Halsey Powerhouse Area					
Halsey Forebay	Day Use, 9 Picnic Tables	9	Yes	11,055	
Located in North Fork of the North Fork American River Area					
Kelly Lake	Day Use, 5 Picnic Tables	5	Yes	1,047	Access to facility across USFS and Snowflower lands
Located in the South Yuba River Area					
Indian Springs	Campground	Unknown	No, USFS	Unknown	
Big Bend	Campground	Unknown	No, USFS	Unknown	
Hampshire Rocks	Campground	Unknown	No, USFS	Unknown	
Silvertip (Lake Valley Reservoir)	Day Use, 10 Picnic Tables	10	Yes	3,275	Access to facility across USFS lands
Sierra Discovery Trail	Interpretive Center				
Dispersed Use	Access Areas	N/A		4,802	

Source: PG&E Co., 1999a

This region has many lakes, streams, and forest lands that all contribute to an important recreational area. The Pacific Crest Trail and the Eagle Mountain Nordic Cross-County Ski Area are available in the vicinity of the Drum-Spaulding license. Donner Lake and Lake Tahoe are within about 15 to 40 miles, respectively, of the license and are the major recreational attractions for the region. In the winter, many people visit the alpine and cross-country ski areas close to Donner Lake and Lake Tahoe. During the summer, this same region attracts many hikers, bikers, boaters, picnickers and others. This region of the Sierras is among the most popular in California for its variety of recreational activities available to the public.

A recreation study conducted by Pacific Gas and Electric Company in 1989 found that the total number of Visitor Days to the Drum Spaulding license was approximately 149,000 (a visitor day is a 12-hour period) and over 1,800 persons at one time (PAOT). In this study, visitor days were based on the number of days within the season multiplied by the average number of PAOT, then adjusted for overnight or day use. A person camping equals two Visitor Days or 24 hours (PG&E Co., 1994a). A majority of users were found to have come from within a two-hour drive, and 88 percent were repeat visitors in 1989. The most common reasons cited for visiting the area in the study was “to fish”, “convenient to home”, “beautiful/scenic area”, “hiking and relaxing” (PG&E Co., 1994a).

The Drum-Spaulding license facilities support numerous recreational facilities, primarily in association with license reservoirs. Since the area population is growing rapidly, there are increasing demands on recreational resources. FERC approved a revised recreation plan in 1994, developed by Pacific Gas and Electric Company, that addresses the recreational opportunities and demands. According to the plan, various recreational facility upgrades and expansions, along with better utilization of existing recreational opportunities, will help meet recreational demand at the large reservoirs. Some recreational demand will not be met at the smaller license reservoirs, but existing demand at these sites exceeds the carrying capacity of the areas and additional facility development is not desirable. In addition, Pacific Gas and Electric Company has an informal agreement with CDFG and the USFS to maintain water levels in the license reservoirs as high as practical during the recreation season.

The towns of Nevada City, Grass Valley, Auburn, Colfax, and Truckee all have businesses that are partially supported by those visiting the recreational resources in the Drum-Spaulding license.

**Reservoirs.** Reservoirs in the Drum-Spaulding system above Spaulding Powerhouses 1 and 2 include Bowman Lake, Fuller Lake, Meadow Lake, Fordyce Lake, Lake Sterling and Lake Spaulding (see Figure 4.6-9). Bowman Lake is not part of the license, but water from Bowman Lake is used in the system. There are several other smaller lakes in the system that feed into Fuller Lake and then to Lake Spaulding, including: Rock Lake and Lower Rock Lake, Upper and Middle Lindsey Lakes (see Figure 4.6-10), Lower Lindsey Lake, Upper Feeley Lake (see Figure 4.6-11), Lower Feeley Lake, Blue Lake, and Rucker Lake. White Rock Lake is a smaller lake that feeds into Fordyce Lake. This system is connected to Lake Spaulding by streams, canals, and tunnels to supply Lake Spaulding's three Powerhouses. Spaulding Powerhouse No. 3 is located at the input to the lake from Fuller Lake. Powerhouses No. 1 and 2 are located below Lake Spaulding.

The next major reservoir downstream from Lake Spaulding is Scott's Flat Reservoir, followed by the smaller Deer Creek Reservoir. These reservoirs are primarily fed by Deer Creek and also draw water via canal from the Bear River. Rollins Reservoir is major reservoir located on the Bear River below the Drum, Dutch Flat, and Alta Powerhouses. Down river from Rollins Reservoir (owned by the Nevada Irrigation District) is another NID facility, Lake Combie. The next recreational reservoir in the Drum-Spaulding facility system is Halsey Forebay, located east of Auburn. Below the Halsey Powerhouse, connected by canal, is Rock Creek Reservoir, located just north of Auburn. This system continues through the Wise and Newcastle Powerhouses before ultimately reaching Folsom Lake.

The reservoirs and streams discussed in greater detail below are those that are potentially affected by the license, and are key recreational resources within the Drum Regional Bundle. Those under the heading "Other Reservoirs" are not considered key recreational areas and/or are not expected to change with the project.

Key recreational reservoirs include Lower and Upper Feeley Lakes, Fuller Lake, Lake Spaulding, Meadow Lake, Lake Valley Reservoir, and Halsey Forebay.

***Lower and Upper Feeley Lakes.*** Lower Feeley Lake had 10,178 visits in 1996, making it one of the more popular lakes in this area. These lakes are part of the Grouse Lakes Vehicle Control Area. Lake Creek, less than 0.25 miles long, connects Upper Feeley Lake to Lower Feeley Lake. Lower Feeley Lake has 12 informal campsites that serve visitors to both lakes for fishing, canoeing, swimming and hiking. Upper Feeley Lake has two informal camping areas. One is located near Lake Creek and has nine sites. Another nine hike-in campsites are along the south shore of Upper Feeley Lake and can be reached by taking Round Lake Trail.

Both lakes are stocked with rainbow trout. From these lakes, there is scenic hiking to other small lakes on Round Lake Trail. For this reason, this area is a trailhead for backpackers headed into the mountains. An undeveloped trailhead parking area on the northeast side of Lower Feeley Lake can accommodate about 40 cars. Lower Feeley Lake has a surface area of 17 acres, a maximum surface elevation of 6,663 feet MSL, and a relatively small capacity of about 150 acre-feet. Upper Feeley Lake has a surface area of 56 acres and a capacity of 739 acre-feet. Because of the higher altitude of the lake, it is used in the late spring through summer.

***Fuller Lake.*** A small parking lot is located on the lower side of the lake near the dam and is accessed by Bowman Road. The lower portion of Fuller Lake is Pacific Gas and Electric Company FERC-licensed land. This area receives the most use from shore anglers and swimmers. The upper end of the lake has a boat ramp suitable for smaller boat trailers and is accessed off the main paved road by a 1/8 mile dirt road sufficient for automobiles. Also located at this end of the lake are about 20 parking spaces, nine campsites with picnic tables and grills, and a restroom. This facility was constructed about two years ago and is on Tahoe National Forest land. There is no fee for camping or day use. The Grass Valley Rod and Gun Club also has a facility located on this end of the Lake with private lake frontage. On a recent site visit during a weekend afternoon, approximately 30 people were using the lake (field observation, Stephen Harrington, WRC Environmental, 7/2000). Because of the higher altitude of the lake, it is used in the late spring through summer.

Fuller Lake acts as a forebay for the Spaulding Powerhouse No. 3. Fuller Lake receives water from the Bowman Lake group, Rock Lakes, Lindsey Lakes, and Culbertson, Rocker, Blue, and Feeley Lakes before it is discharged down a canal to the Spaulding Powerhouse No. 3 and then to Lake Spaulding. Fuller Lake is relatively small with a surface area of 69 acres and a capacity of 1,127 acre-feet. The lake is typically full, according to regular users (field interviews, Stephen Harrington, WRC Environmental 7/2000).

***Lake Spaulding.*** Lake Spaulding provides recreational opportunities for camping, boating, waterskiing, picnicking, and hiking. The lake is easily accessible from Interstate 80 and Highway 20, and the road is paved to the lake. Correspondingly, Lake Spaulding receives heavy use. The

Lake Spaulding Campground alone received about 5,224 visitors in 1996 (PG&E Co., 1999a). During a site visit to the lake on a Sunday afternoon in July, the parking lot at the lake was about 90 percent full and the campground was about 75 percent full (field observation, Stephen Harrington, WRC Environmental, 7/2000).

A parking lot with about 50 spaces is adjacent to the lake's boat ramp on the south side of the lake. A formal campground operated by Pacific Gas and Electric Company is located about a ¼-mile from the lake and has 25 sites, seven of which are hike-in sites. Lake Spaulding receives some informal boat-in camping along the northwest shoreline. Other dispersed boat-in camping occurs near the mouths of Fordyce Creek and the South Yuba River on the northeast side of the lake. A small amount of camping occurs in the coves on the south and southeast shorelines. The lake level was about 40 feet down from the high water line. At this level, the boat ramp appeared to extend down vertical another 10 feet (field observation, Stephen Harrington, WRC Environmental, 2000).

Visitors to the lake have the opportunity for angling, waterskiing, canoeing, kayaking, swimming and hiking along the edge of the lake. The lake is stocked with rainbow and brown trout. Lake Spaulding is 698 acres in surface area, a maximum surface elevation of 5,014 feet MSL, and has a capacity of 74,773 acre-feet, making it the largest lake in the Drum-Spaulding license. With close proximity to Interstate 80, developed boat ramp, parking and camping facilities, and relatively large size, Lake Spaulding is an important recreational lake for the region. The Marin Sierra Boy Scout Camp is located about one-mile southeast of the lake and is accessed from Highway 20. Lake Spaulding is visited in the late spring and summer.

***Lake Valley Reservoir.*** Lake Valley Reservoir is located south of Interstate 80, near Yuba Gap (see Figure 4.6-12). The Lodgepole Campground is operated by Pacific Gas and Electric Company and provides 18 formal campsites. The campground received 8,268 visits in 1996 (PG&E Co., 1999a). A picnic area is also located along the lake and has about 10 sites. Lake Valley Reservoir has a boat ramp that provides power boating opportunities. However, a speed limit prohibits waterskiing, and personal watercraft are prohibited. The lake is stocked every year with rainbow and brown trout by CDFG. A hiking trail from the lake leads to Monumental Ridge. The lake is at about 5,800 feet in elevation and is used in the late spring, summer and fall for water related activities. In the winter, the area is used by crosscountry skiers. The lake has a surface area of about 298 acres and a capacity of 7,986 acre-feet.

***Halsey Forebay.*** Halsey Forebay is located northeast of Auburn in the Christian Valley area. Halsey Forebay is approximately 18 surface acres, has a gross capacity of 244 acre-feet and a usable capacity of 248 acre-feet. The lake is stocked with 200 pounds of rainbow trout every two to three weeks during the season. This fishing opportunity is popular and in 1996 had 11,055 visitors (PG&E Co., 1999a). Because it is closer to populated areas than the mountain lakes and it offers a dependable fishing experience, anglers come from Sacramento and the foothills area to fish at the forebay. Water contact and boating are prohibited. The site has three picnic tables, a restroom, and a parking lot for about 25 cars.

***Kidd Lake.*** The shoreline area of this lake is in both Pacific Gas and Electric Company and other private ownership. It provides non-power boating, water contact, camping, and summer camp recreational opportunities. There is a Pacific Gas and Electric Company-owned group campground with improved sites that can accommodate 100 people. It is operated and maintained by American Land & Leisure (\$5/day-use; \$10/camping). San Francisco Bay Girl Scouts Council operates Camp Deer Lake. This facility provides camping, water contact, sailing, and canoeing opportunities. CDFG stocks brook trout in this lake. Private lands that enclose the northern portion of the lake preclude access and uses. Non-fee public access to the lake is limited in the vicinity of the dam where conditions are not well suited to safe and convenient use.

***Upper Peak Lake.*** Access to this lake is via a dirt road that ends just short of the lake at an elevation about 50 ft. higher than the lake. The end of the road is the trailhead into the Palisades area of the North Fork American on USFS trails. Recreation uses of the lake include day-use, water contact, bank angling, walk-in camping along the shore, and car camping at the end of the road. There are about 20 walk-in campsites around the lake that show relatively low levels of use. At the end of the road there are about six informal car campsites that appear to receive moderate use levels.

***Lower Peak Lake.*** Access to this lake is via a dirt road best suited to high clearance vehicles (4-wheel drive to the west side of the lake). Recreation uses of the lake include day-use, water contact, angling, car-top boating, and car camping. Ground and site conditions indicate that use levels are low. There are about 10 informal car campsites, a few show evidence of relatively heavy use.

***Other Reservoirs and Lakes.*** Other lakes and reservoirs within the Drum Spaulding Bundle include Bowman Lake, Upper Rock Lake, Lower Rock Lake, White Rock Lake, Lower Lindsey Lake, Upper and Middle Lindsey Lakes, Blue Lake, Rucker Lake, Lake Sterling, Fordyce Lake, Kelly Lake, Lake Combie, and Rock Creek Reservoir, Meadow Lake, and Scott's Flat Reservoir.

Recreation at Bowman Lake is primarily camping, fishing, swimming and canoeing. There is no boat ramp available and the lake is accessed by an unimproved dirt road. The Lake is used only in the summer months. Bowman Lake is stocked with 25,000 rainbow trout each year. The primitive campground is free and has seven sites. The road to Bowman Lake also continues to Weaver Lake and Sawmill Lake.

Upper Rock Lake is a 2.8-mile hike from Lower Lindsey Lake. Small stands of conifers on the east side of the lake are used by backpackers as a camping area and has about 10 undesignated sites. This is the most remote reservoir in this Lindsey Lakes area. Activities include fishing, backpacking, day hiking, and swimming. The lake has a surface area of 21 acres, a maximum surface water elevation of 6,714 feet MSL, and a capacity of 207 af.

Lower Rock Lake is about a 2.3-mile hike from Lower Lindsey Lake. There are about seven dispersed campsites around the lake, most are located in stands of conifers. The lake receives overnight and day use by hikers, backpackers, swimmers and anglers. Lower Rock Lake has 9 surface area acres, a maximum water surface elevation of 6,625 feet MSL, and a capacity of 48 af.

White Rock Lake is the highest lake in the Drum-Spaulding license system at 7,820 feet MSL. The primary access to the lake is by Highway 89 to Jackson Meadows Road to a USFS road, and then to a private logging road. The roads are improved dirt to the lake. The lake has two camping areas. The first camping area is located on the west shoreline near the dam and has about nine undesignated campsites. The second camping area is along the northeast shoreline with about 22 undesignated sites. Lakeshore camping is limited due to steep topography. Activities include motorized and nonmotorized boating, camping, angling, day hiking and hunting. White Rock Lake has a surface area of 90 acres and a capacity of 570 af.

Lower Lindsey Lake is the most accessible and the more popular of the Lindsey Lakes group that includes Middle and Upper Lindsey Lakes. All three of these lakes are included in the Grouse Lakes Vehicle Control Area. Lower Lindsey Lake is located about 13 miles from Highway 20 on Bowman Road. The road is easily accessible for autos up to the last 0.3 miles, which are not recommended for low clearance vehicles. Ten informal campsites are located along the north shore of the lake. Undesignated trailhead parking occurs near the campground. Most boating use is by small motorized and non-motorized boats. Popular activities include angling, hiking and camping. Lower Lindsey Lake is 29 surface acres and a maximum of water surface elevation of 6,235 feet MSL.

Middle and Upper Lindsey Lake are located in the Grouse Lake Roadless Area. Middle Lindsey Lake is about a mile hike from Lower Lindsey Lake. There are seven undesignated campsites located on the northern shore of the lake. The lakeshore is mainly flat and provides numerous opportunities for lakeside camping. Activities at the lake include backpacking, hiking, swimming, mountain biking and fishing. The lake has 34 surface acres and a maximum water surface elevation of 6,435 feet MSL.

Blue Lake is located about 6.5 miles from Highway 20 on Bowman Road. Access to the lake from Bowman Road is an unimproved OHV trail. There are two areas for undesignated camping. The first area has seven undesignated sites near the dam and the second area has about 16 sites along the northeast corner of the lake. The lake is fairly remote and receives undeveloped day and overnight use by swimmers, backpackers, anglers, and hikers. Blue Lake has a surface water area of 63 acres and a maximum water surface elevation of 5,931 feet MSL.

Rucker Lake is west of Fuller Lake and about 5.5 miles from Highway 20 on Bowman Road. Access is seasonal, 2-wheel drive during dry conditions and 4-wheel drive during wet conditions. There are about 12 undesignated campsites along the northeast shore as well as an undeveloped boat launch. Recreational opportunities include swimming, angling, non-motorized boat use (a Nevada

County Ordinance prohibits motorized boating on the lake) (PG&E Co., 1994a). Rucker Lake has 69 surface acres and a maximum water surface elevation of 5,464 feet MSL.

Lake Sterling is located about six miles off Interstate 80 on Rattlesnake Road, the last two miles to the lake are dirt road and recommended for four-wheel drive vehicles. The lake has a six site informal campground and a small boat launch and space for about eight cars on the south shore. The campground is managed by the USFS. Motorized boats are not allowed on the lake. The lake also provides opportunities for swimming and is stocked with rainbow trout for anglers. A trail leads north from the lake and provides hiking opportunities. Glacial Trails Boy Scout Camp is located on the south shore of the lake. The north shore of the lake also has an informal campground with about six sites. Lake Sterling has a maximum water surface elevation of 6,987 feet MSL.

Fordyce Lake is located north of Lake Sterling. Fordyce Lake is one of the larger lakes in this region with a capacity of 49,903 af, a surface area of 772 acres, and a maximum water surface elevation of 6,405 feet. Access to the lake is on dirt roads recommended only for four-wheel drive vehicles. Unimproved dirt roads in the area are used by off-highway vehicles (OHV). This access limits boating to only those boats that can be placed on top of a vehicle or a small trailer.

There are about 22 undesignated campsites along the lake's western edge. These sites are generally used during high water. Several campsites are located on the shoreline and provide lakeside camping opportunities. When the lake level is lower, a portion of the lakebed becomes a meadow. This area has approximately seven undesignated campsites. Most camping occurs along the west shoreline in early summer and in the dry lake bed/meadow in late summer. During high water, 60 percent of the lakeshore is accessible by foot while 30 percent is accessible only by OHV. Vehicle accessibility to lakeshore camping increases as lake level drops. Several areas suitable for boat launch are located along the west side of the lake. Along with camping, the lake is stocked with rainbow and brown trout for anglers.

Meadow Lake is located just to the north of Fordyce Lake and is accessed by an unimproved dirt road. The lake is about 250 acres in surface area, has a capacity of 4,841 acre-feet, and a maximum water surface elevation of 7,281 feet MSL. There is an Off Highway Vehicle (OHV) staging parking area on the north end of the lake. According to Pacific Gas and Electric Company, they accommodate an annual four-wheel drive vehicle event called the Sierra Trek that happens in August and involves camping at Meadow Lake. Pacific Gas and Electric Company has historically lowered the flow in Fordyce Creek on the day in and on the day out of the Trek to allow for safe crossing. The lowering of stream flow is an informal agreement Pacific Gas and Electric Company has in cooperation with the event.

Two informal camping areas are located along the lake. Meadow Lake North camping area has about 20 undesignated campsites. Meadow Lake South camping area has five designated campsites with picnic tables and about 28 undesignated campsites, some of which are along the shore. About

60 percent of the shore is accessible by vehicle and the entire lakeshore is accessible by foot. The CDFG stocks the lake each year with rainbow trout. There are also suitable areas for boat launches, but none are formally developed. The Pacific Crest Trail is about 2.5 miles to the east of the lake and can be accessed by unimproved dirt road. Baltimore Lake Trail is located about 2.0 miles to the southeast of Meadow Lake and is also accessible by unimproved dirt road. The lake has some small beach areas that are good for swimming and picnicking.

Kelly Lake is a small reservoir surrounded by private cabins and cabins on Pacific Gas and Electric Company leased lands. Recreational uses are primarily angling. CDFG stocks this lake with rainbow trout. Pacific Gas and Electric Company maintains a 6-site picnic area at this lake. Public access to this lake has been severely constrained by the presence of private residences.

Lake Combie is available privately to homeowners along the lake and the Lake Combie Rod and Gun Club. It provides powerboat recreation and angling. There are private beach areas used for swimming and picnicking. There are no camping facilities. The lake is full from Memorial Day to Labor Day, then it is drawn down by the Nevada Irrigation District to the point that powerboat recreation is not possible. The lake is then nearly full again by November.

Rock Creek Reservoir is located north of the City of Auburn. It can be accessed from Highway 49 on Rock Road and New Airport Road off of Bell Road. The lakefront areas are closed to motor vehicles. The reservoir is a day use area only and activities include angling and hiking/walking. Most of the shoreline is accessible by foot. A KOA campground is located about .25 miles away on Rock Creek Road. The reservoir has a surface area of 55 acres and a maximum water surface elevation of 1442 feet MSL (PG&E Co., 1994a).

Scott's Flat Reservoir is located east of Nevada City off of Highway 20. The lake has a surface area of about 850 acres. The lake has two boat ramps and is open to swimming, boating and angling, with the exception of personal watercraft. A campground with 187 sites is located on the lake and provides formal campsites with space for RVs. The lake has a marina that provides supplies for campers and boaters. A day use fee is charged for use of the lake. The lake is stocked with rainbow and brown trout starting in the spring and continuing through most of the summer months.

The following areas have little or no recreational opportunity and receive little recreational use: Alta Forebay, Wise Forebay, Drum Forebay, Halsey Afterbay, Drum Forebay, Drum Afterbay and Deer Creek Forebay. These areas are discussed below.

Alta Forebay is located about 10 to 15 minutes from Interstate 80 on Alta Reservoir Road. The area receives undeveloped day-use with the main activity being fishing from shore. Approximately 60 percent of the shore line is privately owned or is inaccessible by foot. Alta Forebay has a surface area of 5 acres and a maximum water surface elevation of 4,240 feet MSL (PG&E Co., 1994a).

Wise Forebay is located about half a mile west from Highway 49 in Auburn. The area receives only light day use by anglers and hikers. There is a trail leading from the forebay along the canal that gets some use by hikers. Most of the shoreline is accessible by foot. The forebay has a surface area of 8 acres and a maximum water surface elevation of 1,418 MSL (PG&E Co., 1994a).

Halsey Afterbay is about a half-mile from Interstate 80 on Dry Creek Road. The site is designated for day-use only. Activities include picnicking, angling from shore, and hiking/walking. About 40 percent of the shoreline is accessible by foot and the remaining shoreline is covered with thick berry bushes and wetland vegetation. The afterbay has a surface area of 10 acres and a maximum water surface elevation of 1,496 MSL (PG&E Co., 1994a).

Drum Forebay is about 1.5 miles from Interstate 80 on Culbertson Road. The area receives undeveloped day use mainly by anglers. The shoreline is entirely accessible by foot. Parking areas are unimproved dirt. The forebay has a surface area of 10 surface acres and a maximum water surface elevation of 4,762 feet MSL (PG&E Co., 1994a).

Drum Afterbay is located about 6.5 miles from Interstate 80 on Bonny Nook Road. The area currently receives light, undeveloped day use including angling. Most of the shoreline is steep slopes and inaccessible. The afterbay has about 10 surface acres and a maximum water surface level elevation of 3,383 feet MSL (PG&E Co., 1994a).

Deer Creek Forebay is about 10 miles from Highway 20 on improved dirt road accessible by car. The forebay has a small picnic area with two tables and a restroom located along the south side of the forebay. Angling from the shore is the primary activity at the forebay. Most of the forebay is accessible by foot and a road is located along the north side. Deer Creek Forebay has about 3 water surface acres and a maximum water surface elevation of 4,473 MSL (PG&E Co., 1994a).

***Rivers and Streams.*** Key rivers and streams within the Drum Spaulding Bundle include the South Yuba River, Bear River, and Fordyce Creek.

***South Yuba River, Kidd Creek to Lake Spaulding.*** This reach of the South Yuba River is along I-80, the major east-west thoroughfare across the Sierra Nevada. This reach of the river is in frequent sight of the highway. There are many summer cabins and residences along the channel in the vicinity of Rainbow, Big Bend, and Cisco Grove. Recreational resources include angling, water contact, and camping. The USFS has four campgrounds along the South Yuba River: Indian Springs, Silver Tip (Group campground), Big Bend and Hampshire Rocks with a total of 91 improved campsites.

***Fordyce Creek to Lake Spaulding.*** This reach of Fordyce Creek is used for angling, OHV, biking, day-use, camping, and whitewater boating. The Beyers Lake Trail provides hiking and backpacking access to the Grouse Ridge Vehicle Control Area from the Indian Springs trailhead. OHVs also use an OHV road system along Fordyce Creek from the Indian Springs Staging Area

and this trail accesses much of the Fordyce, Meadow, and White Rock Lake area. The whitewater boating resource is the 10-mile, Class-V Fordyce Creek Run used primarily for kayaking. This is a high value resource due to its High Sierra glaciated terrain setting, local aesthetics, quality and variability of the rapids, and season of use (Carroll, 2000). The useable flow range is reported up to be 300-600 cfs with reduced use levels at flows to about 800 cfs. Optimum flows are reported to be in the 500-600 cfs range (Holbek and Stanley, 1998; Good, 2000; and Carroll, 2000). At this range 13/14' rafts are run and for flows between 125-250 cfs inflatable kayaks are used. The boating season depends on releases from Fordyce Reservoir and put-in access complications due to spring snow cover. Typically, there may be a short spring season when flows are usable and the put-in can be reached by vehicle. However, Pacific Gas and Electric Company typically lowers the flows to unrunnable levels early in the spring. Depending on Pacific Gas and Electric Company water management decisions, the releases from Fordyce Reservoir can be increased, and boatable flows can occur through the summer season or in the fall. Usually there are boatable flows 2-4 cfs between the third week of July and second week of October depending on water year and release (Gotham, 2000). In either case, these later season boatable conditions provide Class V resources when few other Class V runs are boatable. When the Class V run is boatable, there are about 20 kayakers per day. This resource is in the process of transitioning from an exploratory with only occasional uses to one that receives Class V boaters regularly when flows are appropriate. Specific whitewater user numbers are unknown, but boaters report that uses could be 10-30 kayakers on a typical, boatable weekend-day and mid-week uses may be in the 10-30 user range. Depending on particular water years, annual uses could be several hundred user-days.

***South Yuba River; Spaulding Dam to Englebright Reservoir.*** This is about a 48 mile reach of the South Yuba River, which presently provides for a wide range of water-based recreational activities. About 48 miles of this reach, from Lang Crossing through to the inflow point of Englebright Reservoir, has been recommended to Congress for federal Wild and Scenic River designation and will be adopted as a State Wild and Scenic River in January 2001. Land ownership is largely USFS, BLM, and State Parks (the South Yuba Unit) with scattered private lands. Most private lands are either scattered timber lands and rural residential lands or in area of concentrated private rural community and residential lands in and near the town of Washington.

Below Lang Crossing, about a mile below Spaulding Dam, recreation activities are influenced only by hydro-operation as Pacific Gas and Electric Company has no landownership below that point. As a result, all recreational activities associated with the potential sale of the license in this area are water-based in character. The main activities in this reach include water contact, angling and whitewater boating.

Water contact recreation includes wading swimming, and bank uses at eight points of concentration and in many dispersed area. Associated with water contact recreation is informal walk-in camping and some informal car-camping in about 40-60 campsites. Observations during an ongoing recreation data collection study during the 2000 season indicate that water contact recreation visits

could approach 2000 a day on summer weekend-days and 800 on summer weekdays (these estimates are purely observational – data collected has not yet been reviewed.) On-site inspection indicates that camping uses could be in the range of 40 users on weekend days.

Angling occurs at relatively low levels due mostly to low game fish population levels, warm summer water temperatures, and, to some degree, high water contact recreation uses at main access points. On-site inspection indicates that angling uses, as the primary activity, could range to about 10 users a day.

Whitewater boating occurs on four separate runs. The Washington to Edwards run is a C-IV 14-mile long resource with a portage. Usable flows range from 700 cfs to 2000+ cfs; however, due to lack of intermediate accesses and the time-consuming portage, kayaking rarely occurs in the lower flow range and rafting starts at about 100-1200 cfs. The optimum flows are reported to be about 1500 cfs. The Edwards to Purdons run is a 4 mi. C-IV used mainly by kayakers mainly due to its short length. Rafters use it in low numbers, however, when other resources may not be available. The usable flows are 700-2000+ cfs but the better conditions for kayaking are 1500 cfs for hydraulic play. The Purdons to Highway 49 run is a 4 mi. C-V kayak run with four portages. The usable flows are reported to be 800-3000 cfs with an optimum flow of 1500 cfs. The Highway 49 to Bridgeport run is a 7 mi. C-IV/V kayak run with 2 portages. Usable flows range from 700 cfs (with a put-in at Jones Bar) to 2000 cfs with a reported optimum for kayaking at 1500 cfs.

Whitewater recreation use levels are tied to flows and seasonality so uses on the South Yuba vary year to year and given the control on flows in this reach by Spaulding Dam, uses occur mostly in accordance with spring spills at that facility. On-site inspection indicates that if flows were above 1200 cfs in the spring or early summer, present whitewater boating visitation could range from 150 or more users a day on weekend days, and to 75 or more users on weekdays. Flows between 700 and 1200 cfs could range to 75 or more users on weekdays. Flows between 700 and 1200 cfs could range to 75 or more users a day on weekdays. Flows between 700 and 1200 cfs could range to 75 or more users a day on weekend days, and to 20 users on weekdays. Present annual whitewater uses are unknown, but may average about 300-400 visits.

***Bear River from Rollins Lake to Lake Combie.*** The Bear River below Rollins Reservoir is mostly inaccessible. However, the Highway 174 crossing just below Rollins Dam provides access to the river for angling, water contact, and hiking. A trail extends down the north side of the river for approximately one mile, before the canyon becomes steep and the river less accessible. Along this reach of river there are numerous pools and riffles that provide fair rainbow trout fishing. A parking lot on the north side of the Highway 174 Bridge has space for about 15 cars. This area can have moderate use during summer weekends for informal hiking, angling, picnicking and water contact recreation. Much of the river below this portion is privately owned and not easily accessible. Whitewater boating on this section includes Class IV/V run from Highway 174 to Ben Taylor Road and a Class II/III run from Ben Taylor Road to Lake Combie.

### ***Watershed Lands***

***Rock Creek Reservoir to Halsey Forebay Lands.*** This area is located north of the City of Auburn, between the Rock Creek Reservoir and Halsey Forebay, and provides minimal opportunity for local anglers. A license road and the Wise Canal bisect this parcel of land. Access along this license road is limited to foot traffic because it is closed to vehicular access. Though the Wise Canal does provide for some fishing opportunities, use is minimal because of poor fishing habitat within the canal. Also in this area are lands around the Christian Valley Dam. There is some access to Dry Creek; however, there is no formal development of the area for recreation. The area may receive some use from picnickers. Between Halsey Powerhouse and Halsey Reservoir, some hiking and mountain biking may occur by the locals. The primary focus of recreation in this area is Halsey Forebay for fishing, as described above.

***Dutch Flat – Bear River north of Rollins Reservoir Lands.*** There are several parcels of Watershed Land located between Rollins Reservoir (which belongs to the Nevada Irrigation District) and Pacific Gas and Electric Company's Drum No. 1 Powerhouse, including the Dutch Flat Powerhouse and Alta Powerhouse. Although these parcels are in close proximity to the Bear River, they provide little in terms of recreational opportunities due to access constraints. These parcels are situated in an area with very rugged terrain and are adjacent to private lands that provide little public access. Some hiking, mountain biking, and hunting do occur, but not in a developed or heavily used manner. This area is important, however, to people who live in Dutch Flat and Alta areas for dispersed recreation. There is likely some informal access from Lowell Hill Road. BLM has lands adjacent to several of these parcels where similar dispersed recreation may occur.

***Drum Forebay to Bear Valley.*** There are many parcels of Watershed Land between Drum Forebay to Highway 20 generally along the Bear River and the Bear River Canal. These lands are also generally steep, not easily accessed and have no formal trails or other developed recreational opportunities. It is likely that some dispersed recreation does occur such as hunting and hiking; however, the rugged terrain and lack of developed facilities limits use of the lands. Above this area, closer to Lake Spaulding, Pacific Gas and Electric Company has built and currently maintains the Sierra Discovery Trail, an interpretive trail located in the Lake Spaulding area adjacent to Bear River. The trail was constructed in order to provide environmental education opportunities to the general public and is focused on youth and schools. The revised recreation plan includes the trail, but Pacific Gas and Electric Company has not formalized the easement to the Forest Products Commission so that they can take over management of the trail.

***Bear Valley in the Vicinity of Highway 20.*** The Bear River from the Highway 20 bridge provides easy access for trout angling. An informal trail follows the north bank of the river and provides access to numerous pools and riffles for angling. Recent bank restoration work on the river has been accomplished as a collaborative effort between Pacific Gas and Electric Company, CDFG and

the Granite Bay Fly Casters. This work over the past six years has begun to improve the fishery. The Bear River in this area is entirely within Pacific Gas and Electric Company Watershed Lands.

***Lake Spaulding Lands.*** Within the higher elevations north of the Spaulding 1, 2, and 3 Powerhouses, there are several parcels of Watershed Land. While they are located above 5,000 feet in elevation, these lands are reasonably accessible because of their close proximity to Bowman Road, which is located off of Highway 20. The USFS is planning a trail development called the Pioneer Trail. Generally, the trail would extend along the South Yuba River to Lang Crossing and continue to Jordan Creek, follow Jordan Creek and continue up along the north side of Lake Spaulding to connect with an existing trail along Fordyce Creek. The USFS has requested that Pacific Gas and Electric Company grant an easement for this trail, known as the Pioneer Trail. Currently, however, there is only an informal verbal agreement between Pacific Gas and Electric Company and the USFS to allow for preliminary trail alignment work to begin, such as flagging and some brush clearing. Negotiations regarding further development of the Pioneer Trail are ongoing.

Located along the South Yuba River above Lang Crossing and below Spaulding Dam are two rock climbing areas collectively known as the Emeralds. The first area is known as the Benches and is located about a half mile up from Lang Crossing on the south side of the river. The second area, known as the Gorge lies beyond the Benches near the Spaulding Dam. The steep rock walls provide climbing opportunities for experienced rock climbers. Access to these climbing areas is from a dirt access road off of Bowman Road just before Lang Crossing. This dirt road is on Pacific Gas and Electric Company Watershed Lands. Access can also come from the parking area on the north side of Lang Crossing at an informal parking area.

There are additional lands located between Lake Spaulding and Fuller Lake, Rucker Lake and Blue Lake. These lands provide access to Jordan Creek, Fuller Lake, Rucker Lake, and Blue Lake. Recreational facilities and opportunities at the lakes are described below. The lands around these lakes provide dispersed opportunities for camping, hiking, and mountain biking.

***Lands North of Rucker Lake.*** This parcel contains a road that branches off Bowman Road, which provides access to Grouse Ridge for camping, fishing and hiking opportunities. The parcel itself does not have any formal camping areas or lakes, but a dead end road branching through the parcel may be used for dispersed camping opportunities and possible mountain biking and hiking.

***Lands West of Rucker Lake.*** This parcel of land contains Bowman Road, Bowman – Spaulding Canal leading to Fuller Lake and a portion of Rucker Creek. A small dirt road on the parcel provides access for dispersed recreation such as camping, hiking, and mountain biking.

Fall Creek flows south across the parcel of land located west of Rucker Lake. The parcel is adjacent to NID Camp 19 on Bowman Road. There are no trails or roads indicated for this parcel on the Tahoe National Forest Map, and no campgrounds or other facilities are indicated for this

property. While there may be some informal hiking or camping, recreational use of this land is not substantial.

***Grouse Lakes Vehicle Control Area Lands.*** Lands in the vicinity of Lindsey Lakes, Rock Lakes, Culbertson Lake, and Feeley Lakes primarily offer recreational opportunities for hiking and backpacking. This area is a motor vehicle control area known as the Grouse Ridge Vehicle Control Area. Round Lake Trail and Crooked Lake Trail are in the vicinity of license lands, but are not contained within them. No developed recreational opportunities are associated with these lands, with the exception of opportunities described above in relation to the lakes within the license. The lands do offer some opportunity for cross-country backpacking and hiking.

Lands around Meadow Lake, Fordyce Lake, Lake Sterling, and White Rock Lake are all adjacent to the lakes and do not provide recreational resources beyond what is described for the lakes in the above text.

***Lake Valley Reservoir Lands.*** There are about 1000 acres of land in the vicinity of Lake Valley Reservoir. About half of these lands are adjacent to Lake Valley Reservoir. The lands adjacent to Lake Valley Reservoir do not provide substantial hiking or other recreational opportunities beyond the camping, picnicking and boating described in relation to Lake Valley Reservoir. Northwest of Lake Valley Reservoir are lands that are leased from Pacific Gas and Electric Company by Eagle Mountain Resort. Eagle Mountain Resort has a majority of their cross-country ski and mountain bike trails on this land. This resort has over 5,000 visitors each year, mostly in the winter. There is also some limited public access to this land.

### **Bundle 12: Chili Bar**

#### ***Chili Bar (FERC 2155)***

The Chili Bar Bundle is contained in a single FERC license: Chili Bar (FERC 2155). License facilities are located completely within El Dorado County. Power releases through these facilities influence flows on the 21-mile reach of the South Fork of the American River between Chili Bar and Folsom reservoirs.

***Reservoirs.*** Chili Bar Reservoir is the only reservoir in this project. It does not qualify as a key recreational resource because present management and use conditions are foreclosed. Releases from the license flow into Folsom Reservoir, however the license cannot alter flows on a daily basis and the volume of Folsom Reservoir is huge compared to the potential hourly releases from the license. Therefore potential impacts to Folsom Reservoir are considered inconsequential and this facility is not discussed further.

***Chili Bar Reservoir.*** This reservoir is presently inaccessible to the public. Therefore, dispersed recreation at the reservoir does not occur. The rural roads from Placerville, and the south to SMUD's White Rock Powerhouse and the reservoir, exclude public access due to private property

and a gated and locked access road at a point well away from the reservoir. Roads from the north are about 500 feet above the reservoir on a steep hillside and no trail or public lands extend access to the reservoir from that side. At appropriate flows, whitewater boating on the Class V, Slab Creek Run can bring boaters to Chili Bar Reservoir, but the lack of adequate access effectively forecloses that use. Recreational uses are essentially foreclosed at this facility by road closures, locked gates, and no trespassing signage.

***Rivers and Streams.*** The Chili Bar license influences two stream segments. The Slab Creek section of the South Fork of the American River is located above Chili Bar Reservoir, and Pacific Gas and Electric Company land management at the head of the reservoir precludes the potential for whitewater boating on that eight-mile section, and precludes angling and other potential water-related (reservoir and river) recreation in the vicinity of the White Rock Powerhouse. These issues will be addressed in the FERC-Licensed Areas discussion below.

The second segment is the South Fork of the American River from Chili Bar Powerhouse to Folsom Reservoir. This is a major whitewater and river recreation resource with local, regional, and statewide significance. Annual recreation visitation is reported at about 130,000 for whitewater boating (El Dorado County, 2000), 340,000 at the river-related Marshall Gold State Historic Park (of which about 20,000 may be related to whitewater recreation), and an unknown number of other day-use and overnight recreational visitors. In addition, this river segment has considerable rural residential development and local commercial activities, which, to varying degrees, depend on river resource values.

***South Fork of the American River; Chili Bar Dam to Folsom Reservoir.*** This reach of the river is influenced by power releases through the Chili Bar Powerhouse at the base of the Chili Bar Dam and releases at SMUD's White Rock Powerhouse at the head of Chili Bar Reservoir. The White Rock capacity is greater than the capacity of the Chili Bar Powerhouse such that at peak generation, Chili Bar Dam spills water to the river. Flow records as of August, 2000 indicate that these spills (flows above 2,000 cfs) have, at least over a short term, occurred about three-quarters of the time. The frequency and amount of spill is in part a function of Pacific Gas and Electric Company's operational approach to Chili Bar Reservoir in maintaining nearly full pool conditions and the apparent lack of fully coordinated operations between SMUD and Pacific Gas and Electric Company on power inflows to Chili Bar Reservoir.

Recreational activities include whitewater boating, water-contact, angling, casual floating, riparian activities, day-use, overnight-use, historical State Park interests associated with gold and the river, and aesthetic amenities for rural residents. These uses have led to the development of a rural residential community and support economic services along portions of the river that are primarily focused on the river and the flow-dependent resource values of the river.

While all of these activities are basically water-related, those that are most sensitive to streamflow alterations that may be influenced by the Chili Bar project and its operation are whitewater boating, water contact, casual floating, and angling.

*Whitewater Boating.* The whitewater boating resources include several different runs. The uppermost run is the 5-11 mile Class III “Upper Run,” or “Chili Bar Run,” raft and kayak section from Chili Bar to the Coloma/Lotus area (run option is to continue to Folsom Reservoir), the 2-5 mile Class II “Lotus Run,” “Coloma Run,” or “Middle Run” kayak and canoe section from Coloma to Lotus/Greenwood Creek (run option is to continue to Folsom Reservoir on the Class III Gorge Run), and the 9-15 mile Class III “Lower Run,” or “Gorge Run,” raft and kayak section from the Coloma/Lotus area to Folsom Reservoir. These whitewater resources are used by both non-commercial rafters and kayakers, commercial rafting companies, and kayak schools.

El Dorado County is nearing completion of a four-year effort to revise its South Fork American River Management Plan (SFA/RMP). Because the county cannot affect flows, the assessment approach it takes in the document did not address streamflow and the recreational opportunities and limitations that may be related to flow patterns. The assessment did not develop analyses of on-river user patterns or the relationships of user patterns to flow magnitudes, release flow duration, and time of day for those releases. The plan document does not present detailed information on flow and user patterns from any other sources. These parameters are particularly important with respect to potential changes in future Chili Bar license operations. As a result, there is no objectively studied and defensible data-based information on the relationships between flow patterns parameters and whitewater boating issues (such as minimum recreation value conditions for various activity-types, conflicts, safety issues, tolerances, carrying capacity for various levels of service, and loss of use), for this river resource. However, whitewater users of this resource and the river managers, have many years experience with these relationships and can provide observations which, when qualified, can be used to develop an understanding of user patterns and the sensitivity of these patterns to potential flow pattern changes. The following description of use levels, user patterns, and flow-sensitive use parameters was developed through conversations with non-commercial boaters, commercial outfitters, and El Dorado County Parks and Recreation Division staff as noted in the following discussion.

*On-River Use Levels and Use Patterns.* The El Dorado County Parks and Recreation Division collects whitewater use data. It reports that recent annual visitor user-days (a visit by one visitor for any portion of a 24-hour period) have averaged about 89,000 commercial users and 40,000 for non-commercial users; a total of about 130,000 visitor user-days. The peak visitation seasons were 1995 and 1996 when total visitor use was in the 140,000 to 150,000 range. In the 2000 season, there may be about 90,000 commercial visitor user-days (El Dorado County, 2000). These commercial uses are provided by 36 commercial operators using 38 permits issued by El Dorado County.

Some general information for on-river user patterns is collected by the county and is summarized by El Dorado County Parks and Recreation Division staff as follows (El Dorado County, 2000). Over the 1995-1997 period, commercial operations have had a 58/42 percent split in total seasonal user-days between weekend-days and weekdays, respectively, while non-commercial use has been more weekend-day oriented with a whole season 68/32 percent split. On a typical heavy-use Saturday of the main summer season, there can be a total of about 1,200 users (non-commercial users, commercial clients, and commercial guides) on the Upper Run, and 3,000 on the Lower Run. On a typical heavy-use Sunday there can be a total of about 1,500 users on the Upper Run (which has peaked at 1,800 or 1,900 occasionally) and 1,300 on the Lower Run. On a typical weekday during the summer there can be about 500 commercial users and 125 non-commercial users on both runs combined. Occasionally, a Friday may have a total of 1,000 users in both sectors and on both runs combined (El Dorado County, 2000).

The differences in Saturday and Sunday commercial use patterns are a result of client services, trip logistics, and on-river conditions. The Lower Run is generally used on Saturdays because flows arrive later in the day allowing clients a more relaxed morning schedule. In addition, the run starts with several miles of Class II water before the Class III Gorge Run, which allows for the training and acclimatization of clients before more difficult water is encountered. Due to the run length and the timing of water through the river, the take-out time at Folsom is generally late in the day, and Saturdays are not time-limited days for most commercial operators. On Sundays, most commercial use switches to the Upper Run that starts off with Class III water. Due to flow timing and shortness of the run, the flows arrive early in the day and commercial operators can get their clients off the river at Coloma/Lotus earlier on Sunday.

In the absence of any detailed and defensible on-river assessment of actual flow regime relationships to, for example, whitewater recreation use patterns, user levels, dislocation, and resource values, the following is a general review of the on-river and user pattern conditions which may be important factors when considering changes due to future operations of the Chili Bar license. This material has been developed through conversations with commercial and non-commercial users of the resource, staff of the El Dorado County Parks and Recreation Division, and the professional judgment and experience base of the author.

The on-river user patterns on the Upper Run are dominated by the release pattern from the Chili Bar Powerhouse. There are three Chili Bar put-in locations for commercial operations including one that is shared with non-commercial users. All are located just downstream of the Powerhouse with essentially no time delay in flow arrival at the put-ins and boatable flows often appear at about 6:00 AM to 8:00 AM. Some commercial trips launch between 9:00 AM and 10:00 AM, the bulk launch between 10:00 and 11:00 AM, and some between 11:00 AM and 12:00 PM; most have launched by 12:00 PM while a few may launch later to avoid congestion if late hour boatable flows can be relied upon. Non-commercial raft launches are mostly 10:30 AM to 11:30 AM while most kayakers launch between 11:30 AM and 12:30 PM to avoid the rafters. Nearly all non-commercial

launches of the day occur before 1:00 PM while a few may occur as late as 2:00 PM (El Dorado County, 2000; and Minton, 2000).

During the summer season, most whitewater users on the Upper Run are only running to Coloma/Lotus. However, a few (on average about 10 percent of the commercial and about 3 percent of the non-commercial trips) will launch early and run the entire reach to Folsom Reservoir. Casual flow-time observations indicate that in general, releases take about 2-3 hours to transit from Chili Bar to the Coloma/Lotus area. For an adequate recreation day, commercial operators try to time their activities to arrive at their take-out in the Coloma/Lotus area at around 3:00 PM with time for rest stops and lunch. While it is preferred to end the trip on boatable flows, commercial trips occasionally will finish the run on less than boatable flows (about 500 cfs). Non-commercial rafters in general may tend to move through the run faster with a shorter lunch stop with a primary objective of arriving in the Coloma/Lotus area before the boatable flows are lost for the day. Kayakers on the other hand tend to start later in the day, transit slower by spending time at a variety of play locations, and then if flows drop off, transit quickly to the take-out or complete the run on low flows.

On the Middle Run, although most of the whitewater users of this section are either on the end of an Upper Run trip (addressed above) or just starting a Lower Run trip (addressed below), there is a relatively small number of whitewater boaters that use this run exclusively on a given day. These users typically include the kayak schools, novice kayakers and more advance canoeists building skills. With the probable development of the proposed Greenwood access site, the portion of the Class II Middle Run made easily available for use will increase from 3 miles to 5.5 miles. This will most likely result in a future increase in kayak, canoe, and more casual rafting uses of the Middle Run.

The whitewater use pattern of those who use the Middle Run exclusively is more time-flexible than the patterns on either the Upper or Lower Runs. The short river mileage of this run and the typical hourly flow pattern leads to a situation where boatable flows are usually available through the middle of the day. Overall user patterns are such that users of the Middle Run can avoid congestion with users of the Upper and Lower Runs. Presently the use levels on the Middle Run are low enough that internal congestion is not an issue. These characteristics allow the Middle Run users put-in time flexibility and the flexibility to move through the run at nearly any desired pace to satisfy recreational objectives such as play and practice. This is potentially limited by the total duration of boatable flows; however, current demand is not limited by the present release and duration pattern. Should the development of the proposed Greenwood Creek access site lead to a substantial increase in more casual rafting, the rate at which boaters move through this run may become more important, and if visitation increases, Chili Bar Powerhouse release patterns could limit use levels.

Similar to the Upper Run, the user patterns on the Lower Run are dominated by the release pattern from Chili Bar. In the Coloma/Lotus area there are six private put-in locations that provide for

commercial launches only, and five private and public put-in locations that provide launches for both commercial and non-commercial trips. These put-in sites are located from 5 to 11 miles below Chili Bar Powerhouse, and daily release flows are reported to generally take 2-3 hours to reach the various put-ins the Coloma/Lotus area. Therefore, boatable flows that appear at the Chili Bar put-in by 8:00 AM, appear in the Coloma/Lotus area between 10:00 AM and 11:00 AM. Most commercial trips launch between 10:30 AM and 11:30 AM with some starting as late as 12:00 PM and a few after that. If early flows are available, some commercials will launch as early as 10:00 AM but client logistics make this more difficult. Non-commercial rafters generally launch about 2 hour behind the commercial groups with most starting between 11:00 AM and 1:00 PM or later. Kayakers may launch through this entire raft launch period, but tend to start later than the rafts and may launch as late as 1:00-2:00 PM.

The use pattern of the Lower Run is driven by trip length and hourly flow pattern. It is generally the goal of the commercial trips to provide several rest stops and a lunch stop on the 9-15 mile run with arrival at the commercial take-out at about 3:00 PM to 5:30 PM. On Saturdays there is often considerable congestion at the commercial take-out between 4:00 PM and 5:30 PM. To avoid on-river congestion and user conflicts, many non-commercial rafters generally start later than the commercial trips and stay slightly behind the main group of commercial trips. These commercial trips arrive at the Skunk Hollow take-out; mostly between 4:00 PM and 6:00 PM, and some as late as 8:00 PM. To avoid congestion with all rafters, kayakers tend to start later in the day but move gradually through the raft trips in the lower portions of the run.

Flow and Flow-Pattern Factors That Influence Whitewater Recreation. The flow-related factors that could influence whitewater recreation due to future operations of the Chili Bar project include flow magnitude, duration of the daily power releases that create boatable flows, and the timing of those releases.

*Flow magnitude.* Flow magnitude, or discharge, is a variable that can influence boating quality and recreation values, carrying capacity, and displacement. Flows over a specific range on a single segment of river could variably influence different users, activity-types, and boater skill levels. Some may find boating to be improved while others are displaced by space limitation, or inadequate hydraulic conditions (too passive or too intense). The basis of this EIR evaluation is the determination of conditions that lead to displacement. As a stand-alone parameter, flow magnitude of the South Fork of the American River has been reported to influence the loss of boating activity at varying thresholds for varying activity-types. While within reason, any boater once they are at the put-in will use almost any navigable flow. However, if flows were consistent and predictably at some known level that any particular user finds inadequate, those boaters and potential users would be expected to select some other activity.

Kayakers may be broken into two main groups; play boaters (about 1/3 of the kayakers) and downriver kayakers (about 2/3 of the kayakers). Play boaters can spend most of their recreation day on only a few selected play spots on a run and are sensitive to hydraulic conditions associated

with flow magnitude. Particularly in the Upper Run it is reported that play boaters may become displaced at flows of about 1,400 cfs. At flows above 1,400 cfs, these users are, in general, fully satisfied by the hydraulic characteristics. As flows range down to about 1,200 cfs, hydraulic intensity and quality diminish, resulting in diminished resource values. As a result, a portion of these users is then displaced to other resources or activities. Downriver kayakers are also sensitive to flow magnitude but flows between 1,000 and 1,400 cfs represent most changes in boating quality and resource value. Some users may be displaced due to the hydraulic values. Below 1,000 cfs, kayak uses drop off quickly due to diminished hydraulic intensity and slow pools.

Considering flow magnitude as a stand-alone parameter and the assumption that the flows are consistent and known, non-commercial rafting is likely to be largely unaffected by flow magnitude between 1,400 and 1,200 cfs, but reduced resource values would occur and some incidental users may be displaced by resource conditions. Beginning at 1,200 cfs it is expected that displacement would start and uses would decrease quickly to about 1,000 cfs when most non-commercial users would be displaced due to loss of hydraulic intensity.

Commercial rafting tends to be less sensitive in displacement responses over flow range and change in hydraulic conditions than non-commercial boating, but at a particular flow threshold, changes in navigability can lead to dramatic changes in uses. Unencumbered by any other parameter, commercial boating could be expected to occur on flows as low as 1,000 cfs, but below that, substantial reduction in use would occur.

On this river, the suitability of flows that provide adequate recreation values and the flow magnitude thresholds at which users begin to be displaced vary by user levels and the spatial concentration of recreation users. These factors are a function of daily user levels and the duration of boatable flows provided by releases at Chili Bar Powerhouse.

*Duration of Daily Boatable Flows.* In conjunction with flow magnitude, the duration of daily power releases is also an important potential factor in use displacement. The time-window of boatable flows is important in spreading out uses and reducing congestion, user conflicts, and safety concerns such that user displacement in any activity-type would occur. On heavy use days, such as summer weekend days and holidays, most of the commercial trips are running in a 2-hour long window through each of the runs. To accommodate the concentrated commercial boating, and to avoid congestion, many non-commercial boaters not only intermingle, they often use a time window of an hour or two following the commercial bulge. This trip itinerary accommodation does not necessarily relieve congestion, on heavy use days but merely changes with which boaters are sharing congestion. Under time and duration constraints imposed by the power release pattern, water velocity between rapids is an important factor in congestion. In the flow range of 1,400 to 1,200 cfs it has been noted there is a transition of hydraulic conditions in pools that leads gradually from conditions of unconstrained boat and group transit (even during heavy use periods) to, at flows about and below 1,200 cfs, conditions of significant queuing and congestion above rapids.

Flows between 1,200 and 1,400 cfs lessen the adverse consequences of congestion and heavy boat traffic when there is a short window of boatable flows.

As a result of the assessment of flow duration and flow magnitude, it appears that for heavy use days (weekend-days), flows of 1,400 cfs for a duration of 4 hours or more will provide for user patterns and hydraulic conditions such that there will be no displacement. The 1,400 cfs accommodates the threshold for play kayakers. At flows of 1,400-1,200 cfs and a flow duration of 3 hours or more, it is expected that displacement in kayaking and non-commercial rafting will occur due to a diminished boating quality. At flows of 1,000 cfs and a flow duration of less than 3 hours, it is expected that displacement in commercial rafting will occur due to a diminished transit through the pools and increased congestion.

On low use days (weekdays), flows of 1,400 cfs for a duration of 3 hours will provide for user patterns and hydraulic conditions such that there will be no displacement. The 1,400 cfs accommodates the threshold for play kayakers, and due to lower user levels, 3 hours or more of boatable flows is sufficient. At flows of 1,400-1,200 cfs and a flow duration of 3 hours or more, it is expected that displacement in kayaking and non-commercial rafting due to a diminished boating quality. At flows of 1,200-1,000 cfs and a flow duration of 3 hours or more it is expected that displacement in kayaking and non-commercial rafting will occur due to diminished hydraulic and recreation values and increased congestion. At flows of less than 1,000 cfs and a flow duration of less than 3 hours, it is expected that displacement in commercial rafting will occur due to a diminished transit through the pools and reduced recreation values.

*Time-of-Day of Daily Boatable Flows.* The third factor in Chili Bar Powerhouse operations that influences whitewater recreation usability of the river is the timing of the release. Based on the spatial distribution of the runs and client and trip logistical factors, a release that provides boatable flows at the Chili Bar put-in at 8:00 AM (with appropriate flow and duration characteristics as above) will provide no limitations on patterns that would result in use losses on the Upper Run and Lower Run. A 4-hour release from 8:00 AM to 12:00 PM at Chili Bar will provide boatable flows from about 10:00 AM to 11:00 AM to 2:00 to 3:00 PM in the Coloma/Lotus area. A 3-hour release from 9:00 AM to 12:00 PM will provide boatable flows from about 11:00 AM to 12:00 PM to 2:00 PM to 3:00 PM in the Coloma/Lotus area. This pattern would displace commercial launches on the Lower Run and increase conflicts with the non-commercial boating sector, displacing them later in time and increasing use overlap. On heavy use days, this would increase kayaking, non-commercial raft displacement regardless of flow magnitude and duration. On low use days, this pattern probably would not aggravate displacement induced by other parameters.

In 1992, at the start of a summer boating season in a low water year, local Pacific Gas and Electric Company and SMUD operations, dispatching, and planning representatives met and reached an informal agreement on the arrangements for improving communications and planning for the purpose of providing boating flows to the river in that year. With input from one commercial rafting representative, SMUD and Pacific Gas and Electric Company agreed to notify specific

#### 4.6 Recreation

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contact persons in the whitewater community when the following Chili Bar Powerhouse releases would not be met.

Saturdays	Primary	1,200 cfs; 6:00 AM-1:00 PM
	Secondary	- 1,000 cfs; 6:00 AM-1:00 PM
	Worst Case	- 1,000 cfs; 9:00 AM-12:00 PM
Sundays		- 1,200 cfs; 9:00 AM-12:00 PM
Tuesdays thru Fridays		- 1,200 cfs; 9:00 AM-12:00 PM
Mondays		- No target

The commercial rafting representative in the Pacific Gas and Electric Company and SMUD deliberations on this informal agreement has stressed that the target flows listed above are not preferred by the commercial operators nor even necessarily provide fully satisfactory whitewater recreation benefits on the river. They were flow pattern thresholds designed only to keep whitewater boating a viable activity during extreme water year conditions (California Outdoors, 2000). Use levels during the 1992 time frame were about 100,000 to 115,000 annual visitor user-days (about 85 percent of present use levels), which had lower congestion potential (El Dorado County, 2000).

Pacific Gas and Electric Company has asserted that they and SMUD have continued the practice of coordinating operations to accommodate summer season whitewater recreation flows in accordance with this informal agreement (PG&E Co., 1999a).

A careful review of the informal agreement between Pacific Gas and Electric Company, SMUD, and the whitewater boating community concludes that its provisions will not adequately protect whitewater recreation resources on the South Fork of the American River under potential future new owner operations. First, the agreement only states that Pacific Gas and Electric Company will communicate with SMUD to share information about managing flows for whitewater boating; not any commitment to act to provide those flows. Second, the flow patterns mentioned in the agreement are only referenced as being stipulated by the whitewater representative as necessary; other than an agreement that flows are important to the rafting industry, there is no agreement that these are the flow patterns that Pacific Gas and Electric Company and SMUD operations are to provide. Third, the flow patterns referenced in the agreement are not adequate to provide unrestricted whitewater recreation as they were designed to maintain boating viability during very low water year circumstances during a time-frame when on-river use and congestion were at lower levels than at present. Fourth, the only obligation to the whitewater community assumed by Pacific Gas and Electric Company is the notification to that community, on a day-to-day basis, when the referenced flow patterns were not going to be met.

***FERC-Licensed Areas.*** FERC-licensed areas include a portion of the Chili Bar Reservoir surface, reservoir shoreline and lower canyon slope lands, and lands at the dam and Powerhouse. These lands, and those other Pacific Gas and Electric Company FERC-licensed areas in the immediate vicinity, are limited in extent and are foreclosed to public access by a locked-gate access road and prominent “private property - no access” signage. Therefore, dispersed recreation does not occur. The gate is located about a mile from, and about 500 feet above, the reservoir that precludes access to the reservoir, even if users were to walk along the access road. These lands constitute the only feasible take-out access location for whitewater boating on the 7.7 mile Class V Slab Creek Run, which is otherwise only usable on flows between 500 and 2000 cfs when SMUD’s Slab Creek Dam is spilling. Except for the Mosquito Road bridge, at about the middle of the run, there are no points of direct public access along the run between the put-in and the take-out location. These Pacific Gas and Electric Company FERC-licensed areas also could provide recreation access to portions of the reservoir itself and stream angling upstream of the White Rock Powerhouse.

***Watershed Lands.*** There are no Pacific Gas and Electric Company Watershed Lands in the bundle.

#### 4.6.4.4 Motherlode Regional Bundle

##### ***Regional Setting***

The Motherlode Regional Bundle is composed of three bundles that are outlined in Table 4.6-16.

**Table 4.6-16 Pacific Gas and Electric Company Hydroelectric Licenses within the Motherlode Regional Bundle**

Bundle:	License:
Bundle 13: Mokelumne River	Mokelumne River (FERC 0137)
Bundle 14: Stanislaus River	Spring Gap-Stanislaus (FERC 2130) Phoenix (FERC 1061)
Bundle 15: Merced River	Merced Falls (FERC 2467)

The Mokelumne River license (FERC 0137) is located about 8,100 feet in elevation near the Sierra Nevada crest to 800 feet in the upper Sierra Nevada foothills. It is located mainly along the North Fork Mokelumne River and tributaries, parallel to and between Highway 88 on the north and Highway 4 on the south, east of Highway 49, and in the vicinity of the communities of Jackson, Pioneer, and West Point. The terrain runs the range of west slope Sierra Nevada conditions; glaciated granitic landscapes characteristic of the High Sierra and major mid-elevation river canyons. Land uses include timber harvest, rural residential, rural community, resort, and developed and dispersed recreation. The upstream and mid-elevation portions of the license are areas of intermingled Eldorado National Forest land and private land under the jurisdiction of Alpine and Amador Counties. In the downstream portion of the license, land is a mix of private ownership within the jurisdiction of Amador County and public land under the jurisdiction of the Bureau of Land Management (BLM). Several project elements are on the main Mokelumne and North Fork Mokelumne River that form the boundary between the Eldorado and Stanislaus National

Forests, and between Amador and Calaveras Counties. Recreation in the license vicinity include water-contact activities in streams and lakes, whitewater, stream and lake angling, resort, OHV, hiking and biking, day-use, and camping.

The Spring Gap-Stanislaus license (FERC 2130) is located between about 7,300 feet in elevation near the Sierra Nevada crest to about 1,000 feet in the Sierra Nevada foothills. It is located along the Middle Fork and South Fork Stanislaus Rivers and in the vicinity of Highway 108 near the communities of Dardanelle, Strawberry, and Murphys. The terrain runs the full range of west slope Sierra Nevada conditions; glaciated granitic landscapes characteristic of the High Sierra, to major mid-elevation river canyons, to more gentle interfluvial terrain. Land uses include timber harvest, rural residential, rural community, resort, and developed and dispersed recreation. Nearly all the license elements are located within the Stanislaus National Forest with intermingled private land under the jurisdiction of Tuolumne County. Recreational activities in the license vicinity include dispersal activities on reservoirs in this forest, water-contact in streams and lakes, stream and lake angling, resort, OHV, hiking and biking, day-use, and camping.

The Phoenix license (FERC 1061) is located between about 4,200 and 2,600 feet in the lower mid-elevations of the Sierra Nevada, near the community of Twain Harte, and roughly 10 miles northeast of Sonora. Land uses in the license vicinity include timber harvest, rural residential, and rural community. The upstream portion of the license is in an area of intermingled private and Stanislaus National Forest land, while the downstream portion is predominantly under private ownership within the jurisdiction of Tuolumne County. Recreational activities in the license vicinity include general reservoir, general forest dispersed, water-contact in streams and lakes, OHV, hiking and biking, day-use, and camping.

The Merced Falls license (FERC 2467) is located at about 350 feet in elevation immediately west of the Sierra Nevada foothill-Central Valley boundary. It is about six miles east of the small local community of Snelling and about 30 miles east of the Highway 99 corridor near Modesto. Merced Falls Reservoir is positioned between McSwain Reservoir, immediately upstream, and Snelling Diversion Dam impoundment located several miles downstream. Both areas are owned and operated by the Merced Irrigation District (MID). The vicinity of the license is dominated by open grassland with sparse ranching and grazing activities as the major land uses. Nearly all the lands in the license vicinity are private. The license lies on the Mariposa/Merced County line with Mariposa having local jurisdiction over the lands to the east and Merced County having jurisdiction over lands to the west. Recreational activities in the license vicinity include general reservoir related activities, water-contact in streams and lakes, lake and stream angling, hiking and biking, day-use, and camping.

## Local Regulations and Policies

### *Mokelumne River Bundle*

From the perspective of recreational resources, the important local jurisdictions in the Mokelumne River Bundle are the Eldorado National Forest and the Bureau of Land Management.

***Eldorado National Forest.*** In the Eldorado National Forest 1988 Land and Resource Management Plan, a recreation resource goal is outlined. Recreation resource goals 1) provide a wide range of developed and dispersed recreational opportunities that meet projected demand at the end of the planning period; 2) provide public uses to take priority over uses of a semipublic nature; and 3) semipublic uses in turn to take priority over private uses. More natural, simpler recreation experiences over dense, sophisticated developments are encouraged.

The estimated recreation capacity for various types of recreation land classes totaled 9.9 million RVDs for the Forest; and an estimated demand of 8.2 million RVDs by the year 2030 (developed recreation, 4.95 million RVDs; dispersed recreation, 3.24 million RVDs). Capacity was estimated to exceed demand in all categories except Primitive, in which demand was projected to exceed supply by the year 1990, and the magnitude of excess demand expected to grow through to 2030.

The Forest Plan designates several different land management areas adjacent to many of the license elements and resource areas. A Wilderness Area has the management objective of maintaining a lasting system of quality wilderness providing for the public use, enjoyment, and appreciation of the unique characteristics of wilderness consistent with perpetuating its values. “Special Area-Archeological District” has the management objective of providing principally for the recreation uses, maintaining substantially their natural condition, and preserving the integrity of the special interest features for which they were established.

“Semiprimitive Nonmotorized High Country” has the management objective of maintaining a semiprimitive nonmotorized forest setting that combines livestock grazing, minerals development, wildlife habitat management, watershed protection, and dispersed recreation into natural appearing landscapes where motorized uses are not allowed. “Semiprimitive Motorized High Country” has the management objective of maintaining a semiprimitive motorized forest setting that combines livestock grazing, minerals development, wildlife habitat management, watershed protection, and dispersed recreation into natural appearing landscapes where motorized uses are allowed. “Roaded Natural High Country” has the management objective of maintaining a roaded natural forest setting that provides a range of recreational opportunities and experiences, and accommodates both motorized and nonmotorized travel, compatible with grazing, minerals development, wildlife, water, and soil resources.

“Visual Foreground Retention” has the management objective of maintaining a high level of visual quality while providing for opportunities for wildlife enhancement, grazing, minerals development, and dispersed recreation. “Visual Foreground Partial Retention” has the management objective of

providing opportunities for compatible wildlife enhancement, grazing, minerals development, and dispersed recreation activities.

### ***Bureau of Land Management (BLM)***

Under the Federal Land Policy Act, the BLM is responsible for the balanced management of public lands and resources, and their various values so that they are considered in a combination that will best serve the needs of the American people. Management is based upon the principles of multiple use and sustained yield; a combination of uses that take into account the long term needs of future generations for renewable and nonrenewable resources. These resources include recreation, range, timber, minerals, watershed, fish and wildlife, wilderness, and natural, scenic, scientific, and cultural values.

The BLM currently owns and manages many parcels of land along the main and North Fork Mokelumne River downstream of the Tiger Creek Powerhouse. Presently, BLM's management of these lands is not directed by an area-specific plan. In three to five years, the BLM intends to develop and complete a corridor management plan that will prescribe its overall management approach to the area, and may address appropriate land uses including land-based recreation, whitewater boating, mining, and grazing, and may include the further acquisition of corridor lands for the purposes of recreation management (BLM, 2000).

### ***Stanislaus National Forest***

The major direction for recreation management of the Stanislaus National Forest and specific resource management issues in the license vicinity are provided in the 1990 Land and Resource Management Plan.

Relevant recreation goals include: 1) to provide a wide range of recreational opportunities directed at various experience levels to meet current and projected demand, including campgrounds, hiking trails, picnic area, OHV trail, etc.; and 2) to develop recreation management plans for existing and potential areas of concentrated public use which are to address such aspects as planned mixes of summer and winter activities for public and private sector responsibility, development scales, site location, capacity, family and group facilities, existing or potential on-site problems, facilities needed to serve dispersed activities, lake and reservoir surface activity management, as well as implementation and/or expansion phasing.

It is a vision of the Forest for the year 2040 to provide for high levels of diversity while maintaining sustainable levels of resource production for public use and enjoyment including, for recreation, 1) to have recreation value determine the character of the Forest to a large degree; 2) to have developed recreational facilities, ranging from campgrounds and picnic areas to winter sports sites, found throughout the Forest; 3) to have special emphasis placed on visual resources that provide high quality views in areas around: major trails, roads and highways, developed recreation sites, along major rivers and lakeshores, from privately developed subdivisions and recreation

areas, and other areas of concentrated use; and 4) to have many miles of high quality trails on the Forest.

The Forest had a reported 1989 recreational use of about 1.4 million RVDs in developed sites and 1.1 million RVDs dispersed recreation. The Forest's projected recreation demand estimates for the year 2000 was 2.3 and 2.2 million RVDs and in the year 2040 was 3.8 million and 3.1 million RVDs for developed and dispersed activities, respectively. The Stanislaus National Forest estimates that by the year 2040, even if all potential sites are developed, there will be a greater demand for developed-site recreational activities than supply by about 0.2 million RVDs. However, in that same year, supply of dispersed recreation resources is expected to exceed demand by about 1.7 million RVDs.

In the vicinity of Spring Gap-Stanislaus license lands, the Stanislaus National Forest has emphasized Proposed Wild and Scenic River and Scenic Corridor management, Semi-Primitive (Non-Motorized) and Roaded Natural Area recreation objectives, and Retention, Partial Retention, and Modification visual quality objectives.

In the vicinity of Phoenix license lands, the Stanislaus National Forest has emphasized Scenic Corridor management, Roaded Natural Area recreation objectives, and Partial Retention and Modification visual quality objectives.

Proposed Wild and Scenic River management emphasizes maintaining the resource values for which the stream segment was found eligible for Wild and Scenic River status, and maintaining the recommended Classification status: wild, scenic, and recreation. Scenic Corridor management emphasizes the scenic and recreation values of major trails, road and highway corridors, developed recreation sites, major rivers and lakes, and other areas of concentrated recreation use. Of specific concern is the foreground and middleground viewshed values of both dispersed and developed recreation sites.

The Semi-Primitive (Non-motorized) Recreation Opportunity Spectrum includes the objective of predominantly natural or natural appearing environments. The interaction between users is low but there is often evidence of other users, and vehicle uses are limited to short-term management needs. The Roaded Natural Recreation Opportunity Spectrum includes the objective of natural-appearing environments with moderate evidence of the sights and sounds of human and interactions between users to be low or moderate. It provides for resource modifications and utilization practices that are evident, but harmonize with the natural environment.

The Retention Visual Quality Objective provides for management activities that are not visually evident and which may only repeat patterns characteristic of the natural landscape. The Partial Retention Visual Quality Objective provides that management activities may be noticeable, but must remain visually subordinate to the surrounding landscape. The Modification Visual Quality Objective allows management activities to visually dominate the original characteristic landscape;

however, vegetation and landform alterations such as clearcuts must match in character the surrounding area or landscape type.

**Bundle 13: Mokelumne River**

The Mokelumne River Bundle is composed of a single FERC-licensed project, the Mokelumne River license. License elements, facilities and features are located within Alpine, Amador, and Calaveras Counties, and largely within the boundaries of El Dorado and Stanislaus National Forests.

The Mokelumne River license facilities comprise two distinct legs that join at the Salt Springs powerhouse complex and are common through to the Electra Powerhouse. One leg is on the North Fork Mokelumne River from a series of headwater reservoirs in the Blue and Meadow Creeks area (see Figure 4.6-13), where Pacific Gas and Electric Company stores spring runoff for gradual release and delivery to Salt Springs Reservoir and the Salt Springs #1 Powerhouse. The second leg is on Bear River where Pacific Gas and Electric Company stores spring runoff in Upper and Lower Bear River Reservoirs (see Figure 4.6-14) for gradual summer diversion to the Salt Springs #2 Powerhouse along with a small diversion on Cole Creek. The water discharged from these two Powerhouses enter the Tiger Creek Conduit and is delivered to the Tiger Creek Powerhouse and afterbay complex bypassing roughly 17 miles of the North Fork Mokelumne River. From the Tiger Creek afterbay, flows are diverted to the West Point Powerhouse bypassing three miles of the North Fork Mokelumne River and then immediately diverted to the Lake Tabeaud forebay and the Electra Powerhouse. At the Electra Powerhouse, license flows re-enter the Mokelumne River, pass through the Electra Afterbay and flow about six miles to East Bay Municipal Utility District's (EBMUD) Pardee Reservoir.

Table 4.6-17 outlines the recreational facilities associated with the Mokelumne River license.

**Table 4.6-17 Mokelumne River Recreational Facilities**

Name	Type of Facility	Number of Units	All on Pacific Gas and Electric Company Property? If no, list other owner	Visits in 1996	Comments
Located in the Upper Lakes Area					
Lower Blue Lake	Campground	16	Yes	4,078	
Middle Creek	Campground	5	Yes	1,344	
Upper Dam Site	Campground	10	Yes	2,460	
Upper Blue Dam Expansion	Campground	254	Yes	2,392	
Upper Blue Lake	Campground	32	Yes	4,832	
Blue Lakes Overflow	Campground	25	Yes	1,068	
Lower Bear River Reservoir	4 Campgrounds	Unknown	No, USFS	Unknown	
Salt Springs	Day Use, Fishing Access	4	Yes	1,090	
Mokelumne River Canyon	3 Campgrounds	Unknown	No, USFS	Unknown	
Tiger Creek Powerhouse	Day Use, Fishing Access	N/A	Yes	No Information	

**Table 4.6-17 Mokelumne River Recreational Facilities**

Name	Type of Facility	Number of Units	All on Pacific Gas and Electric Company Property? If no, list other owner	Visits in 1996	Comments
Tiger Creek Afterbay	Day Use, Fishing Access and 10 Picnic Tables	10	No, BLM	994	Entirely on BLM Lands
Located in the Electra Powerhouse Area					
Lake Tabeaud	Day Use, Fishing Access and 10 Picnic Tables	10	Yes	3,276	
Electra	Day Use, Fishing Access and 7 Picnic Tables	7	Yes	6,300	
Dispersed Use	Access Areas	N/A		8,316	

Source: PG&amp;E Co., 1999a

***Mokelumne River (FERC License No. 0137)***

**Reservoirs.** There are 13 listed water impoundments in this license of varying recreational importance. They include six headwater storage and summer release reservoirs: Upper Blue Lake and Lower Blue Lake Reservoirs, Meadow Lake and Twin Lake Reservoirs, and Upper and Lower Bear River Reservoirs. There are also seven middle and lower elevation reservoirs and diversion/regulating reservoirs which include the Cole Creek Diversion impoundment: Salt Springs Reservoir, Tiger Creek Re-Regulating and Afterbay impoundments, the Electra Diversion impoundment, Lake Tabeaud Forebay, and the Electra Afterbay. Below the Electra Afterbay, license flows reach Pardee Reservoir. License flows are insignificant in relation to the size of Pardee Reservoir, therefore impacts to this facility are considered inconsequential and it is not discussed further.

**Upper Blue Lake Reservoir.** This reservoir provides general lake recreation including hiking, angling, boating, water contact, day-use, and camping. There is good dirt road access to the lake along the northeast shore. CDFG stocks rainbow and cutthroat trout in this lake. There are two well developed and maintained Pacific Gas and Electric Company campgrounds, and one expansion area with a total of 67 sites at the reservoir. One formal and one informal boat ramp, both unimproved, provide easy access to the lake surface. Lake drawdown provides extensive exposed shoreline and at moderate levels of drawdown improve the usability of the lake. A trail runs the west shoreline connecting both formal campgrounds. There are two trailheads at the lake that lead into the Mokelumne Wilderness.

Pacific Gas and Electric Company reports that there were a total of 9,684 visits to the campgrounds at this reservoir in 1996 (PG&E Co., 1999a). On-site inspection indicates that additional day-uses on weekend-days could be in the 20-30 range. These day-uses include water contact, boating, boat and shore angling, and sightseeing.

**Lower Blue Lake Reservoir.** This reservoir provides general lake recreation including angling, boating, water contact, and camping. There is good dirt road access to the lake along the northeast shore. CDFG stocks rainbow, brook, and Eagle Lake trout in this lake. There is one well-developed and maintained Pacific Gas and Electric Company campground with 16 sites, and an overflow area with 25 sites. One formal but unimproved boat ramp provides easy access to the lake surface. Lake drawdown provides extensive exposed shoreline, but due to the lake bottom configuration, moderate drawdown detracts from the lake's usability.

Pacific Gas and Electric Company reports that there were a total of 5,776 visits to the campgrounds at this reservoir in 1996 (PG&E Co., 1999a). On-site inspection indicates that additional day-use on weekend-days could be in the 20-30 range. These day-uses include water contact, boating, boat and shore angling, and sightseeing.

**Twin Lake Reservoir.** This reservoir provides general lake recreation including angling, day-use, and water contact. Camping is prohibited by Pacific Gas and Electric Company. There is good dirt road access to the reservoir from Lower Blue Lake Reservoir that runs along the north shore to and beyond the dam. CDFG stocks brook and cutthroat trout in this reservoir. In spite of the camping closure, there are about six very lightly used informal campsites at the reservoir, almost all is day-use from the Blue Lakes area. There is an informal and unimproved boat ramp near the east end of the reservoir.

On-site inspection indicates that day-use on weekend-days could be in the 5-10 range. These day-uses include mostly bank angling with very minor levels of water contact, boating, boat angling, and sightseeing.

**Meadow Lake Reservoir.** This reservoir does not have direct road access and use is limited to day-use hikers, backpackers, anglers, and some OHV users. CDFG stocks brook and cutthroat trout in this lake. The access road ends about 1/4 mile before the reservoir and steep terrain prevents casual vehicle access. There are about six lightly used informal campsites used by backpackers and three used by OHV users. A good trail runs the south shore to the dam and proceeds downstream along Meadow Creek, but trail conditions indicate that use below the dam is very light.

On-site inspection indicates that there may be on average one camp occupied on weekend-days with perhaps three individuals. Additional day-uses on weekend/days could be in the 2-5 range. These day-uses include mostly hiking and bank angling.

**Salt Springs Reservoir.** This is a major reservoir in the system but it provides very few recreational resources. A maintenance ramp at the dam has been closed to the public by Pacific Gas and Electric Company, but it is possible to carry light boats and canoes over the barricade to the ramp. The lake surface is expansive and wind-prone. Steep, granitic bedrock shorelines and high winds make the safe use of the lake surface somewhat questionable. There are several boat camps in the inflow area that are also frequented by hikers using the trail running the north shore of

the lake from the dam to the Mokelumne Wilderness. There is a small, three-site Pacific Gas and Electric Company picnic area at the dam, in the boat ramp and trailhead area.

Pacific Gas and Electric Company reports that there were a total of 1,090 day-use visits in 1996 to reservoir at the picnic and fishing access point (PG&E Co., 1999a). Uses of the trail are not known by the USFS, but parking and trail conditions indicate that uses are very low, perhaps 10 users on weekend-days.

***Upper Bear River Reservoir.*** This reservoir provides general lake recreation including angling, boating, water contact, hunting, and camping. CDFG stocks rainbow trout. Access is limited to hiking and boat portaging from Lower Bear River Reservoir along a well built, short trail. This is an isolated setting close to the highly used Lower Bear River Reservoir. There are about six well used and six very lightly used informal campsites used mostly by boaters. A significant portion of the users are anglers that only hike to the dam from Lower Bear River Reservoir to fish.

On-site inspection indicates that there may be on average 2-3 camps occupied on weekend-days with perhaps 6-15 or more individuals. Additional day-use on weekend-days could be in the 10-20 range. These day-uses include mostly bank angling and non-power boating.

***Lower Bear River Reservoir.*** This reservoir is a destination resort and recreation area and provides general lake recreation including angling, boating, water contact, hunting, and camping. CDFG stocks lake, rainbow, brown, and Eagle Lake trout. Access is easy from Highway 88 on a narrow paved road that is presently being widened to a full two-lane surface. Bear River Lake Resort, located on Pacific Gas and Electric Company leased Watershed Lands, is an all-year facility with an improved boat ramp, extensive parking, boat rentals, store/restaurant, and 127 improved campsites along with several extended-stay units. There are three USFS campgrounds with 42 unimproved sites and a USFS group camp with a capacity of 100 users. There are two picnic grounds. Public boating access facilities include one non-fee informal and unimproved boat ramp and one boat-carry location. The Church of Jesus Christ of the Latter Day Saints operate Camp Ritchie on Pacific Gas and Electric Company leased land and, with about six cabins and reservoir access and boat mooring facilities, it provides recreational uses for about 120 girls. The Boy Scouts of America operates Camp Winton on USFS land that accommodates about 150 boy scouts each week, Sunday through Saturday, for nine weeks during the summer. At various locations along the north and east arm of the reservoir there are about 10-15 boat-in campsites located on both Pacific Gas and Electric Company and USFS land. During the winter, Lower Bear River Reservoir is the site of considerable snowmobile recreation, using the Silver Bear Trail on USFS lands.

The Bear River Lake Resort, except for three weeks in November, is open all year. Visitation includes camping at capacity (4 persons/site) for 6-8 weekends of the main recreation season and at about 50-60 percent capacity on weekdays. About 100 day-use visitors use the resort on weekend days and about 20 day-users visit on weekdays of the main recreation season. In the fall about 20 hunters use the overnight facilities. In the winter, when snow conditions are appropriate, there are

about 32 over-night users and about 100 day-use visitors. The boat ramp provides access to the lake until about 45 ft. of drawdown at which point boat launching is provided only at the informal launch on Pacific Gas and Electric Company lands near the dam. This ramp is not well suited to larger trailer boats. This season the resort ramp became stranded on about August 1st. The 80 slip marina provides rental spaces to overnight and protracted stay clients, mainly for larger boats. The marina becomes stranded by lowered lake levels after the ramp becomes stranded; this season the marina became unusable during the week of Sept. 19. The functional use elevation thresholds of these facilities are not precisely known (J. Frasier).

Use levels at the Bear River Lake Resort are estimated at about 15,000 user-days (J. Frasier) and the USFS reports campgrounds uses in 1998 as 22,197 RVD's; no information on day-use or use of the picnic site are available (USFS, 2000p).

***Cole Creek Diversion Impoundment.*** This is a very small impoundment, only about 50 feet by 100 feet, with significant seasonal drawdown. Angling, water contact, and car-camping in one or two informal sites are the main recreational activities. Use levels are very low, and on-site inspection indicates that weekend-day uses may be in the 2-5 range. Recreationists also park vehicles at the site when angling in Cole Creek below the diversion.

***Tiger Creek Regulator Reservoir.*** This is a small, limited-use facility. Recreation is limited to bank angling with water contact and boating prohibited. On-site inspection indicates that weekend-day use may be in the 2-5 range and recreational resource values are very low. The parking area of this facility and dam provide access by foot to Tiger Creek below the dam.

***Tiger Creek Afterbay.*** This is a relatively large facility with three access locations that include two picnic areas with about 15 sites. Uses are limited to hiking and bank angling with water contact and boating prohibited. Use levels appear to be relatively low. This is the take-out location for the Devil's Nose whitewater run on the North Fork Mokelumne River; Bear River to Tiger Creek reach (see below).

Pacific Gas and Electric Company reports that there were a total of 994 visits to one of the picnic areas at this reservoir in 1996 (PG&E Co., 1999a). On-site inspection indicates that additional day-use on weekend-days could be in the 20-30 range with uses including bank angling, picnicking, hiking, and sight-seeing.

***Electra Diversion Impoundment.*** This is a very small impoundment, about 100 feet by 300 feet, and recreation is restricted to very limited bank angling by enclosure fencing, although road access is easy and parking not limiting. On-site inspection indicates that day-use on weekend-days could be in the 2-3 range.

***Lake Tabeaud Forebay.*** This is a small full-use reservoir with notable daily water surface fluctuation. Uses include boating, boat and bank angling, water contact, and hiking. CDFG stocks

this lake with rainbow and Eagle Lake trout. Access from Highways 49 and 88 and the towns of Jackson and Pine Grove is fairly easy on paved rural roads. Uses appear to be mostly local residents, with bank angling being a primary activity. There is an unimproved boat ramp and a Pacific Gas and Electric Company picnic area with 10 sites.

Pacific Gas and Electric Company reports that there were a total of 3,276 visits at this reservoir in 1996 (PG&E Co., 1999a).

***Electra Afterbay.*** This facility is a passive afterbay with a slotted dam that acts to moderate flow changes by constricted outlets, and an outlet capacity that increases with water surface elevation in the afterbay pool. At lower flows, the impounded water is limited to a small area against the dam face. Streamflows and stream channel configuration is present through most of the reach in the impoundment pool area. Access is by narrow paved road from Highway 49 to the Electra Powerhouse grounds. Uses include bank angling and water contact. Several good quality beaches are present along the channel in the impoundment pool area. Parking is limited at some distance from the river. On-site inspection indicates that day-use on weekend-days could be in the 5-15 range limited mostly by parking and resource constraint limitations.

***River and Streams.*** The Mokelumne River License operations influence flows on as many as 12 stream reaches. These include eight small and moderately sized tributary reaches in the headwater and mid-elevation portions of the license and four reaches of the main and North Fork Mokelumne River in the mid to lower elevations of the license. These stream reaches vary in importance to recreation with uses ranging from very infrequent angling uses to full-spectrum uses in much higher numbers.

License 137 has been in the FERC relicensing process since 1972. Recently, a collaborative process, involving ten parties, has completed the Mokelumne Relicensing Settlement Agreement that was designed to resolve all streamflow issues among the parties and to identify the appropriate USFS Final 4(e) Conditions for FERC new license. The collaborative process addressed streamflows of 16 stream reaches and reached agreement on recommended flows and flow regimes considering a wide range of environmental issues including recreation. Most of the flow recommendations were based on biological concerns; however, a few were specific to river recreation, especially whitewater boating. While these flow recommendations are presently in the form of Final 4(e) Conditions proposed to FERC, they are here assumed to be the requirements for future operations regardless of ownership.

***Blue Creek; Upper Blue Lake Reservoir to Lower Blue Lake Reservoir.*** This short stream reach (less than a mile) is between Upper and Lower Blue Lake Reservoirs. Recreational uses include hiking, angling and camping. There is one well developed and maintained Pacific Gas and Electric Company campground with five sites. The trail from Upper Blue Lake to the Grouse Lake/Granite Lake portion of the Mokelumne Wilderness follows this stream for a short distance.

Pacific Gas and Electric Company reports that there were a total of 1,344 visits to the campground in this stream reach in 1996 (PG&E Co., 1999a). On-site inspection indicates that additional day-use on weekend/days could be about five angler and riparian users.

***Blue Creek; Lower Blue Lake Reservoir to Deer Creek.*** This reach of Blue Creek flows south from Lower Blue Lake Reservoir about three miles through some steep gradients and through the lower gradient Clover Valley to a confluence with Deer Creek in Deer Valley. This area is a strip of private lands surrounded by National Forest land. Along Blue Creek and Deer Creek below the confluence and through Clover and Deer Valleys, recreational access is by OHV using USFS Road 9N83, a rugged 4-wheel drive road. Along this road, and along Blue and Deer Creeks before the road leaves Deer Creek about 2.5 miles south of Lower Blue Lake, recreational activities include OHV, car-camping, water contact and angling; however, most uses are associated with OHV and car-camping. Overall, there are about 15 unimproved car-campsites, all accessible by OHV only, which show varying levels of use.

On-site inspection indicates that weekend-day uses could include 2-5 occupied campsites with 10-20 users along with an additional 10-20 vehicle transits. Recreational uses include camping, recreational driving, angling, hiking, and water contact.

***Meadow Creek; Twin Lake Reservoir to Meadow Lake Reservoir.*** This short stream reach (about a mile) is accessed by USFS Road 9N01. Along this road there are about six informal car-campsites, most showing evidence of very light and infrequent use. The stream is very small, offering little stream-oriented recreation. On-site inspection indicates that weekend/day uses could include one occupied camp with 2-5 users, with some additional incidental angling and occasional recreational driving activities.

***Meadow Creek; Meadow Lake Reservoir to the North Fork Mokelumne River.*** Access to this area is by unimproved trail from the Meadow Lake Dam. On-site inspection and observations of trail and campsite conditions, indicate that average weekend-day uses may be less than two users. Uses appear limited to angling, riparian, and hiking in the vicinity of the dam as incidental activities associated with camping at Meadow Lake Reservoir.

***North Fork Mokelumne River; Deer Creek to Salt Springs Reservoir.*** The North Fork Mokelumne River in this area is very remote and attracts only occasional backpackers, anglers, and hunters. Four or five USFS trails reach the river from both the north and south, but there is little through connection. It is a well known, little used, but high valued Class V+ kayak run (Fantasy Falls Run) from the Highway 4 Bridge to Salt Springs Reservoir. This is a multi-day, more or less "expeditionary run" with 2-5 portages, bivouac camping, and extreme isolation. Recommended boating flows are 600 to 800 cfs with an optimum flow of about 700 cfs (as measured by Salt Springs Reservoir inflow) (Holbek and Stanley, 1998). Use levels are unknown but probably there are fewer than five trips a season.

**Cole Creek; Cole Creek Diversion Dam to the North Fork Mokelumne River.** The diversion facility is used for access to reaches of Cole Creek immediately downstream. On-site inspection indicates that uses are angling, riparian, and water contact, and on weekend/days include about 2-6 users. These uses are either day-use, or associated with car-camping in the area of the diversion, or from campsites along reaches of Cole Creek upstream of the diversion. Other uses of Cole Creek occur in the vicinity of the confluence with the North Fork Mokelumne River, from USFS Road 8N50. These uses are angling and water contact associated with day-use or car-camping along the Mokelumne River. On-site inspection indicates that use in this area could be as many as 5-10 users on weekend-days.

**North Fork Mokelumne River; Salt Springs Dam to Bear River.** Streamflows in this reach are supported by spills and releases from Salt Springs Reservoir, the Salt Springs Powerhouse, and Cole Creek. Recreational uses are typically full spectrum river recreation including water contact, angling, causal floating, riparian, and car-camping. There are three USFS campgrounds with 22 unimproved sites and about 30 informal car-campsites in this reach. The river in this reach provides high recreational resource values particularly at lower flows. The campgrounds are in poor condition and show evidence of heavy use. The downstream-most campground is the put-in access point for the Class III-V Devil's Nose whitewater run (see below). The Mokelumne Settlement Agreement specifies the development of whitewater rafting put-in facility improvements in the vicinity of this campground.

The USFS reports that in 1998, uses of the USFS campgrounds were estimated at 12,182 RVD's. On-site inspection indicates that weekend/day uses could include about 20 occupied informal campsites with 60 campers (three users/site), and an additional 10-20 other day-users with activities including angling, water contact, and riparian.

**Bear River; Bear River Reservoir Dam to North Fork Mokelumne River.** This is a steep gradient stream with very poor access except at the Bear River Diversion structure at USFS Road 8N50. Recreation is limited to very low levels of water contact, riparian and angling at and around USFS Road 8N50. On-site inspection indicates that weekend-day uses could be in the range of 2-6 users.

**North Fork Mokelumne River; Bear River to Tiger Creek Afterbay.** Access to this reach is limited to whitewater boating and occasional anglers hiking along the channel upstream from Tiger Creek Afterbay. The reach provides an excellent but lightly used 14.8 mile Class III-V raft and kayak run from the Mokelumne River Campground to the Tiger Creek Afterbay. It is a Class III-IV resource at 700-1500 cfs and Class IV-V at 1500 to 4000 cfs (Holbek and Stanley, 1998). The Mokelumne Settlement Agreement specifies the provision of whitewater flows in this reach on two weekend-days from about mid-May to mid-June: flows of 900 cfs in above normal and wet water years and 700 cfs in below normal water years are to be present at the put-in between 10 AM and Noon. The agreement also calls for the development of a suitable whitewater boating take-out facility near the Tiger Creek Powerhouse.

**Tiger Creek; Tiger Creek Regulator Reservoir Dam to North Fork Mokelumne River.** About 3.5 miles of Tiger Creek is affected by flow modification at Tiger Creek Regulator Reservoir. About one mile of this reach is accessible for recreation from USFS Road 8N50 and the Regulator Dam area. On-site inspection indicates that the uses of this stream reach are predominantly just below the Tiger Creek Dam, about 1/4 mile downstream to, and for a short distance below, USFS Road 8N50. Upstream of the road angler trails are well used, but farther downstream few informal trails were observed either along the stream or from the road to the channel. Based on trail evidence and vehicle parking capacity it appears that weekend-day visitation could be in the range of 2-5 users, mostly bank anglers, but possibly limited riparian and water contact uses.

**North Fork Mokelumne River; Tiger Creek Afterbay Dam to Electra Diversion Impoundment.** Access to this reach is by a gated construction road below the Tiger Creek Afterbay Dam and at the Highway 26 Red Corral Road Bridge. Uses include water contact and angling near the Tiger Creek Dam, and water contact, angling, and riparian at Highway 26. Winter and spring spills at the Tiger Creek Afterbay Dam provide flows for the 3-mile Class IV Tiger Creek Dam Run, a raft and kayak resource to Highway 26 (Holbek and Stanley, 1998).

On-site inspection, a review of ground conditions, and an estimated parking capacity indicate that on weekend/days, the non-whitewater boating recreational uses may range from 5-10 near the Tiger Creek Dam to as many as about 100 (30 vehicles at 3 users/car) at Highway 26.

The Mokelumne Settlement Agreement specifies the provision of whitewater flows in this reach on six weekend/days from about mid-May to mid-June: flows of 900 cfs in above normal and wet water years and 700 cfs in below normal water years are to be present at the put-in between 10 AM and 2 PM. The agreement also calls for the development of a suitable whitewater boating put-in facility near the Tiger Creek Dam and a suitable take-out facility at an unspecified location.

**North Fork Mokelumne River/Mokelumne River; Electra Diversion Dam to Electra Afterbay.** Access to this reach of the river is highly limited by remote conditions, steep terrain, and limited public road access. Between the Electra Diversion Dam and Ponderosa Road, the reach of the North Fork Mokelumne River and the Mokelumne River below the North Fork confluence is essentially inaccessible with no public roads. It is in a steep rugged canyon and has a steep gradient not conducive to foot or boat access. The 2.5-mile reach below Ponderosa Road, however, has a lower gradient and provides whitewater recreation. The reach to the Electra Afterbay is known as the Class III Ponderosa Run and has a gradient of 40 feet/mile and has numerous Class II and III rapids. Other than occasional angling, some whitewater boating, and gold mining, there are few known recreational activities. CDFG stocks this river reach with brown and rainbow trout.

The Mokelumne Settlement Agreement specifies the provision of whitewater flows in this reach on one weekend-day from about mid-May to mid-June: flows of 900 cfs in above normal and wet water years and 700 cfs in below normal water years are to be present at the put-in between 10 AM and 2 PM. The agreement also calls for the development of a suitable whitewater boating put-in

facility at Ponderosa Road and a suitable take-out facility near the Electra Powerhouse. Also the agreement calls for the development of a boating portage trail around the Electra Afterbay Dam so that boaters can connect with the Electra Run addressed below.

***Mokelumne River; Electra Afterbay Dam to Pardee Reservoir.*** The first three miles to Highway 49 is a full spectrum river recreational resource, while the second three-mile reach from Highway 49 to the Middle Bar Bridge on Pardee Reservoir is closed to public access by EBMUD's land ownership and land management practices. Above Highway 49, BLM manages much of the lands along the river. Uses include angling, water contact, riparian, and whitewater boating. The Class II-III Electra Run has a gradient about 25 feet/mile but is only about three miles in length (Holbek and Stanley, 1998). The importance of this whitewater resource is in the reliable summer boating flows and low level of difficulty. As such, it provides good learning and training opportunities and opportunities for river slalom race events. Its main drawbacks are the short run length and take-out access difficulties due to the lack of public land in the vicinity of the Highway 49 Bridge. There is a Pacific Gas and Electric Company picnic area near the put-in with seven sites, and several improved BLM use sites are located along Electra Road.

Pacific Gas and Electric Company reports that there were a total of 6,300 visits to its picnic area in 1996 (PG&E Co., 1999a). On-site inspection indicates that additional non-boater day-uses on weekend/days could be as high as 100-200 engaged in angling, water contact, and riparian activities.

The Mokelumne Settlement Agreement specifies the provision of whitewater flows in this reach on 75 percent of the weekend-days from May 1 through June 15, and 50 percent of the weekend-days from June 16 through July 31: flows of at least 700 cfs to be present at the put-in between 10 AM and 4 PM. The agreement also calls for the development of a suitable whitewater boating put-in facility at an unspecified location, and a good-faith-effort by Pacific Gas and Electric Company to purchase suitable access lands near the Highway 49 Bridge for the development of a suitable take-out facility.

***FERC-Licensed Areas.*** FERC-Licensed Areas include all or substantial portions of the reservoirs and regulating storage facilities of the license and areas surrounding two of the five license powerhouses.

***Upper Blue Lake Reservoir Lands.*** These lands mainly include the entire immediate shoreline areas of the reservoir except along the western shore where the land lies back from the shore several hundred feet. Present uses of these lands are hiking, bank angling, and other forms of access to and around the reservoir. Use levels on these lands are reflected by the reservoir use estimates presented above.

Eldorado National Forest management on adjacent lands includes Wilderness and Semiprimitive Nonmotorized.

**Lower Blue Lake Reservoir Lands.** These lands mainly include the entire immediate shoreline areas of the reservoir. Present uses of these lands are hiking, bank angling, and other forms of access to and around the reservoir. Use levels on these lands are reflected by the reservoir use estimates presented above.

Eldorado National Forest management on adjacent lands is Semiprimitive Nonmotorized with Wilderness management on nearby land.

**Twin Lake Reservoir Lands.** These lands mainly include the entire immediate shoreline areas of the reservoir. Present uses of these lands are hiking, bank angling, and other forms of access to and around the reservoir. Use levels on these lands are reflected by the reservoir use estimates presented above.

Adjacent Eldorado National Forest lands are designated as Semiprimitive Nonmotorized and Semiprimitive Motorized with Wilderness management on nearby land.

**Meadow Lake Reservoir Lands.** These lands mainly include the entire immediate shoreline areas of the reservoir and a short extension of lands downstream of the dam. Present uses of these lands are hiking, bank angling, and camping. Use levels on these lands are reflected by the reservoir use estimates presented above.

Adjacent Eldorado National Forest are designated as Wilderness, Semiprimitive Nonmotorized, and Semiprimitive Motorized.

**Upper Bear River Reservoir Lands.** These lands mainly include the entire immediate shoreline areas of the reservoir except in a few locations where the lands extend several hundred feet back from the shore. The FERC-licensed areas include nearly all the informal campsites at this reservoir. Also included is the access/portage trail between Lower and Upper Bear River Reservoirs. Present uses of these lands are water contact, boat and bank angling, boating, and boat-camping. Use levels on these lands are reflected by the reservoir use estimates presented above.

Adjacent Eldorado National Forest lands are designated as Semiprimitive Nonmotorized, Visual Foreground Retention, and Visual Foreground Partial Retention.

**Lower Bear River Reservoir Lands.** These lands mainly include intermittent shoreline areas around the reservoir. At times the FERC Licensed Areas only include the immediate shoreline area, while in other locations the FERC-licensed areas extend substantially back from the shoreline. Present uses of these lands include riparian, water contact, bank angling, and boat-camping. These lands also include the leased Bear River Lake Resort.

Adjacent Eldorado National Forest lands are designated as Visual Foreground Retention and Visual Foreground Partial Retention on nearby lands.

**Panther Creek Lands.** These lands mainly include the area of the channel along 2.5 miles of Panther Creek. Recreational activities on these lands are limited to angling and water contact in the vicinity of the crossing of USFS Road 8N50. Although the terrain is rugged, access along the channel provides for occasional angling activities.

Land management on adjacent private lands include timber harvest and grazing. On Eldorado National Forest, management on adjacent and nearby lands includes Special Area and Special Species Habitat.

**Tiger Creek Regulator Reservoir Lands.** These lands mainly include the entire shoreline of the reservoir, substantial lands back from the shore, and lands along Tiger Creek several hundred feet downstream of the dam. Present uses of these lands include riparian and bank angling. Use levels on these lands are reflected by the reservoir use estimates presented above.

Land management on adjacent private lands includes timber harvest and grazing.

**Tiger Creek Lands.** These lands mainly include the area of the channel along 2.75 miles of Tiger Creek. Recreational activities on these lands are limited to angling and water contact in the vicinity of the crossing of USFS Road 8N50. Although the terrain is rugged, access along the channel and from several road accesses provide for occasional angling activities.

Land management on adjacent private lands includes timber harvest and grazing. On Eldorado National Forest, adjacent lands are designated as Special Area.

**Tiger Creek Afterbay Reservoir Lands.** These lands mainly include intermittent shoreline areas around the reservoir and where they occur, they extent substantially back from the shoreline. FERC-licensed areas also extend downstream below the dam about 300 feet. Present uses of these lands include riparian, bank angling, and picnicking. Use levels on these lands are reflected by the reservoir use estimates presented above.

Land management on adjacent BLM lands includes grazing, USFS lands Special Management Area, and on nearby private lands, timber harvest and grazing.

**Lake Tabeaud Forebay Lands.** These lands are extensive and include the entire shoreline of the reservoir and much of a section of land surrounding the forebay. Present recreational uses of these lands include riparian, bank angling, picnicking, hiking, and non-recreational grazing. Use levels on these lands are reflected by the reservoir use estimates presented above.

Land management on adjacent BLM lands includes grazing, and on nearby private lands, timber harvest, grazing, agriculture, and rural residential.

**Electra Powerhouse/Afterbay Lands.** These lands are extensive and include the lands on both banks of more than a mile of the Mokelumne River as well as extensive areas back from the river.

Present recreational uses of these lands include riparian, bank angling, picnicking, and whitewater boating access. These lands are also used for grazing. Use levels on these lands are reflected by the afterbay use estimates presented above.

Land management on adjacent BLM and private lands include grazing.

***Watershed Lands.*** Pacific Gas and Electric Company Watershed Lands are located in the vicinity of many of the license elements as well as in isolation from license elements and FERC-licensed areas.

***Upper Blue Lake Reservoir Lands.*** These lands surround the reservoir and the FERC-Licensed Areas, which include the entire immediate shoreline area of the reservoir. The Watershed Lands at this reservoir include the campground areas, portions of several trails into the Mokelumne Wilderness Area, a short portion of the Pacific Crest Trail, and general dispersed recreational opportunities. These trails do not have perfected easements to the USFS or other public resource agencies to provide for full public access and egress to the Wilderness Area. Use levels on these lands are reflected by the reservoir use estimates presented above and on-site inspection indications that there could be 10-20 hikers on the forest trails of these lands on weekend/days.

Adjacent Eldorado National Forest lands are designated as Wilderness and Semiprimitive Nonmotorized.

***Lower Blue Lake Reservoir Lands.*** These lands surround the reservoir and the FERC-Licensed Areas, which include the entire immediate shoreline area of the reservoir. The Watershed Lands at this reservoir include general dispersed recreational opportunities. Use levels on these lands are reflected by the reservoir use estimates presented above with little additional general dispersed recreation.

Adjacent Eldorado National Forest lands are designated as Semiprimitive Nonmotorized with Wilderness management on nearby land.

***Twin Lake Reservoir Lands.*** These lands surround the reservoir and the FERC-Licensed Areas, which include the entire immediate shoreline area of the reservoir. Watershed Lands at this reservoir include general dispersed recreational opportunities and some of the reservoir-side campsites. Use levels on these lands are reflected by the reservoir use estimates presented above including a little additional general dispersed recreation.

Adjacent Eldorado National Forest lands are designated as Semiprimitive Nonmotorized, and Semiprimitive Motorized with Wilderness management on nearby land.

***Meadow Lake Reservoir Lands.*** These lands surround the reservoir and the FERC-Licensed Areas, which include the entire immediate shoreline area of the reservoir. Watershed Lands at this reservoir include general dispersed recreational opportunities and some of the reservoir-side

campsites. Use levels on these lands are reflected by the reservoir use estimates presented above including a little additional general dispersed recreation.

Adjacent Eldorado National Forest are designated as Wilderness, Semiprimitive Nonmotorized, and Semiprimitive Motorized.

***Deer Creek Lands.*** These lands are located in the headwaters area of Deer Creek along USFS Road 9N03. These lands are open forested lands with some extensive wet meadows and a few ponds. Present recreation uses include OHV, hunting, car-camping, and limited hiking. There are scattered campsites that show varying levels and frequencies of use. There are several OHV roads and abundant evidence of firewood cutting. The Pacific Crest Trail runs along the northern edge of the parcel and there are a few informal trails crossing the parcel with old abandoned camps. Recreational uses appear to be infrequent and light, limited mostly to fall hunting camps and dispersed hunting.

Adjacent Eldorado National Forest are designated as Roded Natural.

***Upper Bear River Reservoir Lands.*** These lands surround the reservoir and the FERC-Licensed Areas, which include the entire immediate shoreline area of the reservoir. Watershed Lands at this reservoir include general dispersed recreational opportunities. Use levels on these lands are reflected by the reservoir use estimates presented above with little additional general dispersed recreation.

Adjacent Eldorado National Forest are designated as Semiprimitive Nonmotorized, Visual Foreground Retention, and Visual Foreground Partial Retention.

***Lower Bear River Reservoir Lands.*** These lands generally extend back from the FERC-Licensed Areas and only include portions of the area around the reservoir. Present uses of these lands are OHV, general dispersed recreation, and resort/cabin leases to the Church of Jesus Christ of the Latter Day Saints, Camp Ritchie. This camp has the capacity for about 120 recreational users, and with a nine-week season used, could be about 1,100 user-days.

Adjacent Eldorado National Forest lands are designated as Visual Foreground Retention, and Visual Foreground Partial Retention on nearby lands.

***Cole Creek Lands.*** These Watershed Lands are located along about three miles of Cole Creek, and along a trail and OHV route near the creek into the Upper Pardoes Camp and Willow Flat area. This trail is not a recognized USFS trail, and there is no easement to the USFS providing for public access and recreational uses. Recreation on the Watershed Lands includes hiking, recreational driving, car- and walking-camping, hunting, and angling. Timber harvesting has been a recent activity. The eastern portion of these lands extend about one mile into the Mokelumne Wilderness Area. Use levels are unknown, but summer camping was observed along Cole Creek. OHV

activity appears relatively common with perhaps 5 vehicles on these lands on a weekend-day, and fall deer hunting may be common with several on-site camps occupied.

Adjacent Eldorado National Forest lands are designated as Wilderness and High Site Timber.

**North Fork Mokelumne River Lands.** There are three small parcels of Watershed Land located along the North Fork Mokelumne River between Salt Springs Dam and the Tiger Creek Afterbay. The area below Salt Springs Dam includes frontage on the Salt Springs Road and the river. Recreation on these Watershed Lands is limited to riparian and angling uses.

Two other parcels are located about six and seven miles below Salt Springs Dam. They include both banks of the North Fork Mokelumne River. Access to these lands is limited to non-trail dispersed hiking and whitewater boating. Recreational uses are limited to dispersed recreation.

Adjacent Eldorado National Forest are designated as Special Area, and on the Stanislaus National Forest-Retention and Partial Retention.

**Panther Creek Lands.** These lands mainly include relatively extensive portions of the inner canyon and lower watershed portion of the Panther Creek watershed. This is steep canyon terrain and recreation is limited to occasional dispersed hunting and angling in very low numbers.

Land management on adjacent private lands includes timber harvest and grazing. On Eldorado National Forest, management on nearby lands includes Special Area, and Special Species Habitat.

**Tiger Creek Regulator Reservoir Lands.** These lands mostly include extensive portions of the inner canyon and middle watershed portion of the Tiger Creek watershed. This is steep canyon terrain, and recreation is limited to only occasional dispersed hunting and angling in very low numbers. Use levels on these lands are reflected by the reservoir use estimates presented above with little additional general dispersed recreation.

Land management on adjacent private lands includes timber harvest and grazing.

**Tiger Creek Lands.** These lands include relatively extensive portions of the inner canyon and lower watershed portion of the Tiger Creek watershed. This is steep canyon terrain and recreation is limited to occasional dispersed hunting and angling in very low numbers.

Land management on adjacent private lands includes timber harvest and grazing. On Eldorado National Forest, management on adjacent lands is Special Area.

**Tiger Creek Afterbay Reservoir Lands.** These lands mostly include the inner canyon environment along 1/4 mile of the North Fork Mokelumne River upstream of the Afterbay. The recreational activities on these lands include dispersed, riparian, angling, and water contact associated with public access at the Tiger Creek Powerhouse and whitewater boating on the Devils Nose Run. Use

levels on these lands are reflected by the afterbay use estimates presented above with little additional general dispersed recreation. On-site inspection indicates that weekend-days, non-whitewater, recreational use of these lands could be about 10 users.

Land management on adjacent BLM lands include grazing; on USFS lands, Special Management Area; and on nearby private lands, timber harvest and grazing.

***Mokelumne River Lands.*** There are about six parcels of Watershed Land located along the North Fork Mokelumne River and the main Mokelumne River between the FERC-Licensed Areas at Electra Diversion Dam and Electra Powerhouse. These parcels are generally located in the inner canyon environment or on the steep canyon side-slopes. Access is highly restricted due to difficult terrain and lack of public road access. Recreation resource opportunities are very restricted, limited to only low levels of general dispersed recreation.

Land management on adjacent BLM and private lands include grazing.

***Lake Tabeaud Forebay Lands.*** These are located adjacent to the FERC-Licensed Areas, which include the entire shoreline of the reservoir and much of the land surrounding the forebay. Present recreational uses of these lands are limited by restricted access and poor recreation values. They are presently used mainly for grazing. Use levels on these lands are reflected by the forebay use estimates presented above with little additional general dispersed recreation.

Land management on nearby BLM lands include grazing, and on nearby private lands, timber harvest, grazing, agriculture, and rural residential.

***Electra Powerhouse/Afterbay Lands.*** These lands extend downstream from the FERC-Licensed Areas about 300 feet and include the lands on both banks of the Mokelumne River. Present recreational uses of these lands include riparian, bank angling, picnicking, boating access, and non-recreational grazing. Use levels on these lands are reflected by the afterbay use estimates presented above with little additional general dispersed recreation.

Land management on adjacent BLM lands includes grazing, as well as on nearby private lands.

#### **Bundle 14: Stanislaus River**

The Stanislaus River Bundle includes the Spring Gap-Stanislaus license (FERC 2130) and the Phoenix license (FERC 1061). These licenses are located exclusively within Tuolumne County and, except for the lowest element of each license, are totally within the boundary of the Stanislaus National Forest.

The Spring Gap-Stanislaus license (FERC 2130) is composed of two distinct legs that join at Sand Bar Reservoir below the Spring Gap Powerhouse, and are common through to the Stanislaus Powerhouse. One leg is on the Middle Fork Stanislaus River from Relief Reservoir, where Pacific

Gas and Electric Company stores spring runoff for gradual release and delivery to Donnell and Beardsley Reservoirs, (owned and operated by Tri-Dam) with eventual delivery to Sand Bar Reservoir. The second leg is on the South Fork Stanislaus River where Pacific Gas and Electric Company stores spring runoff in Strawberry Reservoir (see Figure 4.6-15) for late season release to the South Fork Stanislaus River and diversion. Water continues about four miles below Strawberry Dam to the Spring Gap Powerhouse, which is by the Philadelphia Diversion Dam and Canal. The Spring Gap Powerhouse delivers water to the Middle Fork Stanislaus River about three miles above Sand Bar Reservoir. Water is diverted at the Sand Bar Dam into a tunnel, and delivered to the Stanislaus Forebay and on to the Stanislaus Powerhouse through penstocks. Powerhouse releases are discharged to the Stanislaus River, enter the Stanislaus Afterbay, and finally flow into New Melones Reservoir.

The Phoenix license (FERC 1061) is located between about 2,600 and 4,200 feet in the lower mid-elevations of the Sierra Nevada. It is located north of, and roughly parallel to, Highway 108, near the community of Twain Harte and roughly 10 miles northeast of Sonora. The terrain is typical steep canyon and hillside slopes of this elevation belt. Land uses in the vicinity include timber harvest, rural residential, and rural community. The upstream portion of the license is in an area of intermingled private and Stanislaus National Forest lands, while the downstream portion is predominantly under private ownership.

The license is composed of a single reservoir, Lyons Reservoir, located on the South Fork Stanislaus River, the approximately 12-mile long Main Tuolumne Canal, which delivers water from Lyons Reservoir to the penstock above the Phoenix Powerhouse, and through Phoenix Powerhouse. Inflow to Lyons Reservoir is derived from watershed runoff, storage and release from Strawberry Reservoir into the South Fork Stanislaus River, and from flows not diverted to the Spring Gap-Stanislaus license at the Philadelphia Diversion Dam. Both Strawberry Reservoir and the Philadelphia Diversion Dam are part of the Spring Gap-Stanislaus license (FERC 2130) but Pacific Gas and Electric Company's water operations of Strawberry Reservoir are partly driven by contractual obligations to deliver irrigation water to Tuolumne Utility District (TUD) at Lyons Reservoir. The Phoenix license delivers water to two locations for domestic uses before the Phoenix penstock. Below the powerhouse the license delivers water to Phoenix Lake by way of two miles of open channel flow. Associated with this license Pacific Gas and Electric Company owns a total of about 1,100 acres of FERC-Licensed Land and Watershed Land together.

### ***Spring Gap-Stanislaus (FERC 2130)***

***Reservoirs.*** There are six listed water impoundments in this license. They are Relief Reservoir, Strawberry Reservoir, the Philadelphia Diversion Pool, Sand Bar Reservoir, the Stanislaus Forebay, and the Stanislaus Afterbay. Table 4.6-18 describes the recreational facilities associated with the Spring Gap-Stanislaus license. Of these, only Strawberry Reservoir has significant recreational resources and recreational uses. However, due to FERC license provisions, this reservoir is not expected to have significantly different operations that may affect recreational

opportunities and facilities. Below the Stanislaus Afterbay, license facility flows reach New Melones Reservoir. License facility flows are insignificant in relation to the size of New Melones Reservoir and the other inflow sources. Therefore, impacts to New Melones Reservoir are considered inconsequential and this facility is not discussed further.

**Table 4.6-18 Spring Gap-Stanislaus Recreational Facilities**

Name	Type of Facility	Number of Units	All on Pacific Gas and Electric Company Property? If no, list other owner	Visits in 1996
Located in the Stanislaus Powerhouse Area				
Stanislaus Forebay Access	Day Use, Fishing	N/A	Yes	1,000
Located in the Strawberry Reservoir Area				
Pinecrest Lake	Camping	300	No, USFS	Unknown
Pinecrest Lake	Picnic and Day Use Area, swimming beach, amphitheater, marina, parking areas, boat ramps, resort, camping, and trail		Privately owned	Unknown
Located in the Relief Reservoir Area				
Dispersed Use	Access Area	N/A	Unknown	2,531

Source: Pacific Gas and Electric Company, 1999a

***Relief Reservoir.*** This reservoir is within the trail network from Highway 108 into the Emigrant Wilderness. The lower end of the reservoir is about 2.3 miles from the Kennedy Meadows Resort (see Figure 4.6-16) and about three miles from the USFS trailhead near Deadman Campground. The trail into the Emigrant Wilderness does not directly access the reservoir, but secondary paths and the abandoned dam construction routes provide access to hikers and backpackers. At the lower end of the reservoir there are about six unimproved sites. Only two or three have direct accesses to the lakeshore, the others are located on higher bedrock benches. At Grouse Creek, about the middle of the reservoir's east shore, secondary paths lead to the reservoir where there are about 10 campsites of high quality. Camping activities appear to be of moderate intensity. Recreational activities include angling, water contact, day-use, and camping. CDFG stocks this lake with brook and rainbow trout. The reservoir is a major visual quality component of hiker and stock users entering the Emigrant Wilderness Area from Kennedy Meadows.

User numbers are not known; however, on-site inspection indicates that on weekend days there could be as many as 20 or more users either camping near and/or visiting the lakeshore. Pacific Gas and Electric Company reports about 2,500 visits in 1996 (PG&E Co., 1999a). The USFS provisionally reports that a trail counter located between Kennedy Meadows and Relief Reservoir

has recorded 26,000 hits during the summer of 2000 through about early August. These numbers can be extended to an estimate of possible total summer count of 16,250 visitors assuming 1) 25 percent can be added to the partial season count to reflect possible total summer count; 2) each user is counted on each leg of a round-trip; and 3) each counted user visits or passes Relief Reservoir (USFS, 2000o).

Pacific Gas and Electric Company operates Relief Reservoir by filling it with snow-melt runoff primarily in the months of March through May with gradual reservoir drafting starting in June through July and continuing through about October. The drawdown can be as much as 125 feet.

***Strawberry Reservoir (Pinecrest Lake).*** This reservoir is a destination resort and recreation area and is a major recreation resource for the community of Strawberry and the Pinecrest Basin. The reservoir provides general lake recreation including angling, power and non-power boating, water contact, hiking, and camping. CDFG stocks brook and rainbow trout. Access is convenient from Highway 108 about 30 miles from Sonora. Pinecrest Lake Resort is a full service facility with extensive parking, marina, boat rentals, and store/restaurant. The marina has 200 slips for long term mooring for boat-owning residents and has 100 boats for rent. There are four USFS campgrounds with 303 improved sites either close to, or within reasonable walking distance of, the lakeshore. In addition, there are five private campgrounds in the Pinecrest Basin that rely on the lake as a primary recreation feature. There is a public picnic area, an extensive swimming and wading area, and a handicapped water contact recreation and angling access facility. There is one non-fee public boat ramp. There are 379 private cabins in the Stanislaus Nation Forest's Pinecrest Tract under permit from the USFS, more than 50 with waterfront access to Strawberry Reservoir.

The USFS has reported year 1999 uses in the Pinecrest Basin to be about 997,530 RVD's. About 514,000 are day-users and 483,530 result from 241,765 overnight stays. Of the day-uses, 164,000 were at the USFS facilities and 350,000 at Pinecrest Resort facilities. The reported overnight stays included: 77,565 at USFS campgrounds, 115,200 at Pinecrest recreational residences, and 49,000 at various private camps, resorts, and lodges (USFS, 2000o).

Important reservoir drawdown levels relative to recreation include: 10 at feet, operations at the marina are adversely affected and full operations are not possible; at 15 feet, the marina is grounded and operations are not possible; at 17 feet, the public boat ramp is out of the water and launches are limited to 4-wheel rigs (Pinecrest Lake Resort, 2000).

Pacific Gas and Electric Company operates Strawberry Reservoir by filling it with snow-melt runoff primarily in the months of March through May with very gradual reservoir drafting starting in June through July and continuing through August with more rapid drafting through December. The drawdown can be as much as 65 feet. Pacific Gas and Electric Company references FERC license Article 29, stating that Strawberry Reservoir is to maintained at the maximum elevation possible, consistent with operational demands during the period June 1 through September 15 (PG&E Co., 1999a).

***Philadelphia Diversion Pool.*** This is a very small facility on the South Fork Stanislaus River about four miles below Strawberry Dam and a mile above Spring Gap Road. The impounded water body is about 100 feet long and about 30 feet wide at the dam. It is accessed either by trail along the north side of the river from Spring Gap Road or by way of a spur road off of USFS Road 4N13 from either Strawberry or the Fraser Flat Campground area. The pool itself is basically inaccessible due to very steep bedrock on both banks, fencing at the diversion structure, and very poor accessibility of the stream channel immediately above the pool. There are no recreational facilities, and recreational uses are limited to angling and riparian uses immediately downstream of the dam, and sight-seeing by those who happen to drive to the facility. On-site inspection indicates that weekend-day uses in the vicinity of this facility may be as high as three users. This facility is located on the Class V Strawberry whitewater kayak run discussed below under South Fork Stanislaus River; Strawberry Dam to Lyons Reservoir.

***Sand Bar Reservoir.*** Sand Bar Reservoir is a small facility located at the end of a long, sometimes steep, dirt road. It has one USFS campground with 14 improved sites. Recreational activities include car-camping, water contact, day-use, and angling. Boating is prohibited by Pacific Gas and Electric Company. The campground parking area is the trailhead of the well-built pack trail that leads upstream along the Middle Fork Stanislaus River along the edge of the riparian zone. The Middle Fork Stanislaus River above the reservoir is a CDFG Wild Trout Stream. Angling also occurs downstream of the reservoir but due to difficult terrain, uses are low and do not occur far from the access location.

The reservoir area is also the put-in location for the 6 mile Class IV-V, Sand Bar Flat Run. This is a little-used exploratory run for kayaks during periods of Sand Bar Flat Dam spills with recommended flows between about 800-1500 cfs and an optimum of about 1200 cfs. It backs up onto the 8 mile Mt. Knight Run to the Stanislaus River with the same character but with recommended flows of about 1200 to 3000 cfs and optimum flows of about 2000 cfs (Holbek and Stanley, 1998).

Specific user levels at Sand Bar Flat are unknown but the campground may be used at a capacity of about 30 percent over a 100 day summer season (about 1260 user-nights [assuming three users per occupied site] or 1890 RVD's). On-site inspection indicates that day-use anglers may be as high as 10 users per weekend-day, while many of the campers engage in angling.

***Stanislaus Forebay.*** This is a small, 16-acre reservoir with engineered banks, located at an isolated site about six miles from the Stanislaus Powerhouse on USFS Road 3N03. Recreation activities are limited by restrictions to bank angling, day-use, and picnicking. Facilities are limited to parking and portable restrooms. Pacific Gas and Electric Company reports uses at 5,200 annual recreation days in 1997 and 1000 visits in 1996.

***Stanislaus Afterbay.*** At the Stanislaus Powerhouse, power releases enter the Stanislaus River and flow a short distance to the Stanislaus Afterbay. This facility appears no longer functional.

Stanislaus River flows transit to an old pool area and through the afterbay structure. The site now is effectively channeled with basically riffle hydraulics and extensive sand bar development on the right bank. Recreation uses are limited by steep and unstable slopes between the Clark Flat access road and the channel. On-site inspection indicates that uses at this site are presently bank, water contact recreation, and angling. These use levels are very low and may only be five or so users on weekend days.

### ***River and Streams***

***Summit Creek/Middle Fork Stanislaus River to Clark Fork.*** This 13 mile reach of river has many stream-oriented recreational activities including angling, water contact, riparian, camping, resort recreation, and summer cabins. Highway 108 provides immediate access to most of this reach. Upstream of the Kennedy Meadows Resort, access is limited to foot and horse. There are five USFS campgrounds with 161 improved car-campsites, 12 improved walk-in sites, and a USFS picnic area. There are also many summer cabins along this reach, both in the vicinity of Douglas, the resort community center of Dardanelle, and a YMCA camp. Kennedy Meadows Resort is a full service mountain resort with cabins, restaurant, and horse stables. Kennedy Meadows Resort is on Pacific Gas and Electric Company leased lands and is addressed in detail under Watershed Lands below. Whitewater boating resources includes a nine-mile Class IV-V kayak run from Baker Campground to the Clark Fork. It is a spring season run on flows in the 300-600 cfs range. This resource has predominantly a creek-like character so that, at present, it attracts only occasional exploratory uses. CDFG has stocked rainbow trout in this reach.

From the confluence of Summit Creek, the Middle Fork Stanislaus River to Donnell Reservoir has been found suitable for Federal Wild and Scenic River designation, and this recommendation has been made to Congress for action. The reach of Summit Creek to the Clark Fork Bridge is classified as Recreational and from Clark Fork Bridge to Donnell Reservoir is classified as Wild.

This area is a very heavy recreational use area. The USFS reports 1999 uses as 156,040 RVD's. About 45,000 are day-users and 111,040 results from 55,520 overnight stays. The day-uses were all from Dardanelle Resort with an unknown and unreported additional number from USFS and other sites. The reported overnight stays included: 45,920 at USFS campgrounds, 9,600 at Dardanelle Resort (Burnett, 2000). In addition to these user numbers, Kennedy Meadows Resort reports about 21,200 RVD's; about 6,800 are day-users and 14,400 results from 7,200 overnight stays (Kennedy Meadows Pack Station and Resort, 2000).

Pacific Gas and Electric Company's operation of Relief Reservoir influences the flows in this stream reach. The reservoir is typically filled with snowmelt runoff primarily in the months of March through May with gradual reservoir drafting initiated from June through July, and continuing through October. Streamflow modifications in this reach include lowered flows in the spring, and higher flows in the summer and early fall.

***South Fork Stanislaus River; Strawberry Dam to Lyons Reservoir.*** Although the Spring Gap-Stanislaus license facilities extend below Strawberry Dam only about four miles to the Philadelphia Diversion structure, minimum flows and seasonal bypass flows affect streamflows through to Pacific Gas and Electric Company's Lyons Reservoir (FERC 1061). The water-related recreational uses of this entire reach are discussed here.

The four-mile stream reach from Strawberry Dam through the community of Strawberry to the Philadelphia Diversion Dam is an important recreational element for the community and visitors. In Strawberry, the stream is low gradient with pools/riffles and with clumps of riparian vegetation, an extensive adjacent meadow, and sand and gravel beaches. Below the bridge on Old Strawberry Road, the stream has a steeper gradient and is dominated by some bedrock sections but mostly larger cobble materials. Rapids and pool/drop configuration characterize the channel. The reach from Old Strawberry Road to the Philadelphia Diversion Dam is easily accessible from an adjacent bike and hiking trail located on the Sugar Pine Railroad grade that extends to the bridge at Spring Gap Road and on to Twain Harte. The channel is easily accessed at several locations by several informal trails off of this main trail. Recreational activities include angling, water contact, riparian, hiking, mountain biking, and equestrian. The South Fork Stanislaus River has been used for Class V whitewater kayaking through to Lyons Reservoir, but due to both steep, bouldery pitches, long, low gradient reaches, and unreliable boatable flows, it is a marginal resource only used rarely by exploratory boaters. The recommended flow range is 400-1200 cfs with an optimum flow of 700 cfs (Holbek and Stanley, 1998). Due to steep bedrock bank enclosure and the flat dam crest at the Philadelphia Diversion, boating during facility spill conditions could be very hazardous.

On-site inspections indicate that weekend-day uses on this resource could be as high as 30-50 users from Strawberry Dam through Strawberry in a variety of activities. Between Strawberry and the Philadelphia Diversion Dam there could be as many as five anglers and five other water-based recreational users. On the Sugar Pine Railroad Trail there could be 20-30 users, mostly on mountain bikes.

There are about seven miles of the South Fork Stanislaus River between the Philadelphia Diversion Dam and Lyons reservoir. This reach has a steep bouldery character for the first half-mile below the diversion dam, but it soon moderates into a channel characterized by rapids with smaller materials, wide pools, and some bedrock sections. There are, however, some sections with steep cobble dominated pitches. Above the Spring Gap Road Bridge, recreation includes day-use, informal car-camping at the bridge, informal walk-in camping along the channel on sand beaches and forested terraces, angling, and water contact. Below the bridge, the USFS Fraser Flat campground has 38 improved sites and handicapped facilities near the stream. Most of the users of the campground appear to use the South Fork Stanislaus River for water-related recreational activities including angling, water contact, and riparian. Downstream of this campground, on the south side of the river, USFS Road 4N90 (on the Sugar Pine Railroad alignment) provides access to the channel through to Lyons Reservoir. On USFS land, upstream of Pacific Gas and Electric

Company Watershed Land, recreation along this reach includes angling, water contact, riparian, and informal car-camping. Land-based and water-based recreation issues below this point are addressed in the Phoenix license section.

On-site inspection indicates that weekend-day uses may include 3-4 occupied informal car and walk-in camps with 6-12 users, 114 users at Fraser Flat campground (assuming three users/site), 30 anglers associated with camping, 15 day-use anglers, 20 water contact and riparian day-users, and 20-30 users on the Sugar Pine Railroad Trail.

***Middle Fork Stanislaus River; Spring Gap Powerhouse to Sand Bar Reservoir.*** This three-mile reach is a steep, isolated, boulder-dominated channel. Rapids and a pool/drop setting characterize it; however, the rapids are typically sieves through room-sized boulders. There is a well built and maintained pack trail along the south edge of the channel from the Sand Bar Campground to the Spring Gap Powerhouse and on to Beardsley Dam. Recreational uses include day hikes from Sand Bar campground, angling, and water contact. There are several unimproved camp sites along the trail scattered in small riparian and sand/terrace pockets along the banks. Observed site impacts imply moderate use levels; however, the trail indicates relatively heavy use levels.

This is a CDFG Wild Trout Stream and is noted as probably having the highest wild trout stream values on the west slope of the Sierra Nevada. This is reportedly due to productivity in terms of fish numbers and size between Beardsley Dam and Sand Bar Reservoir, not angler activity (CDFG, 2000). CDFG has instituted special angling regulations in this reach including barbless artificial lures, a two trout daily limit, and a 14-inch minimum fish size. CDFG is collecting angling information with a voluntary census box at the Sand Bar parking area but there are no reliable angler use numbers.

On-site inspection indicates that weekend-day uses may be as high as 5-10 anglers, five hikers, and perhaps one occupied informal walk-in campsite with two users.

***Middle Fork Stanislaus River; Sand Bar Dam to North Fork Stanislaus River.*** This stream reach is very remote and recreational uses are limited to occasional angling from Sand Bar Reservoir and the Clark Flat area near the Stanislaus Powerhouse, and whitewater boating. Sand Bar Reservoir is the put-in location for the six-mile Class IV-V, Sand Bar Flat Run between Sand Bar Dam and the Mt. Knight trail. This is an extremely little used exploratory run for kayaks during periods of Sand Bar Flat Dam spills with recommended flows between about 800-1500 cfs and optimum flows of about 1200 cfs. This run connects with the eight mile Mt. Knight Run to the Stanislaus River with the same character but with recommended flows of about 1200 to 3000 cfs and optimum flows of about 2000 cfs (Holbek and Stanley, 1998). The Mt. Knight Run is also an exploratory kayak resource that gets very little use.

On-site inspection indicates that on weekend-days on this reach, uses could be as high as 10 anglers from both day-use and camping sources.

**FERC-Licensed Areas.** FERC-licensed areas include only some land adjacent to the Spring Gap Forebay, the Spring Gap Powerhouse, and the Stanislaus Forebay and Powerhouse complex.

***Spring Gap Forebay Lands.*** These lands surround the locked and enclosed Spring Gap Forebay and maintenance area. They are generally situated on rolling ridgetop terrain and are forested. The recreational activities include unauthorized OHV uses and recreational driving on Forest System roads.

Stanislaus National Forest management on adjacent lands includes General Forest, Roaded Natural Recreation Opportunity Spectrum, and Modification Visual Quality Objective.

***Spring Gap Powerhouse Lands.*** These lands are located at the Powerhouse and include about ¼-mile of the Middle Fork Stanislaus River channel and immediately adjacent canyon-side terrain. Recreational access to this land is by trail either from Beardsley Dam or Sand Bar campground. This trail and footbridge are not presently covered by a formal easement that provides public access. The recreational uses are limited to angling, water contact, and riparian. Use levels are unknown but probably very low.

Stanislaus National Forest management on adjacent lands include General Forest, Semi Primitive (Non-Motorized) Recreation Opportunity Spectrum, and Retention Visual Quality Objective.

***Stanislaus Forebay and Powerhouse Lands.*** These lands are located on the eastern half of the forebay reservoir and the east and west bank of the Stanislaus River in the area of the Powerhouse. The recreational uses of the forebay lands are only those associated with the use of the reservoir shore. Use levels are unknown but on site inspection they appear very low. At the Powerhouse, these lands include the east and west bank of the river, the steep canyon-side above the Powerhouse, and along the penstock route. The recreational uses are limited to angling access, water contact access, and other uses associated with access to the river. On-site inspection indicates very low use levels.

Stanislaus National Forest management on lands adjacent to the forebay lands includes General Forest, Roaded Natural, Semi Primitive (Non-Motorized) Recreation Opportunity Spectrums, and Retention and Modification Visual Quality Objectives. On USFS lands adjacent to the Powerhouse lands, management is directed by General Forest and Scenic Corridor resource management, Roaded Natural Recreation Opportunity Spectrum, and Retention and Modification Visual Quality Objectives.

**Watershed Lands.** There are three areas of Pacific Gas and Electric Company Watershed Lands in the Spring Gap-Stanislaus license. These include Kennedy Meadows, lands adjacent to the Spring Gap Powerhouse, and lands adjacent to the Stanislaus Forebay.

**Kennedy Meadows Lands.** These lands are under lease for recreational purposes to the Kennedy Meadows Resort and Pack Station. It is several acres along about a mile of the Middle Fork

Stanislaus River and includes open meadows, lower forested slopes and terraces along the stream. This resort is open from about the third week of April until the end of Columbus Day weekend in October. It has a variety of cabins and cabin sizes offering a total of 80 beds, a restaurant open most of the year, a general store, and a pack station and guide service. The resort operates at about 20 percent occupancy through about June 15, about 80 percent occupancy until about September 15, and then again at about 20 percent occupancy until the end of the season. These uses amount to about 7200 over-night stays or about 14,400 RVDs for lodgers. Day-users also visit the resort facilities and the leased lands, engaging in a variety of recreational activities including hiking, riparian, water contact, and angling. These users are reported to be about 20 per day on the shoulder seasons, and about 40 per day in the main season- about 5,400 RVDs. Also, there are about 700 stock clients a year which amount to another 1,400 RVDs on Kennedy Meadows lands when overnight trips are conducted (Kennedy Meadows Pack Station and Resort, 2000). There are also local day and partial-day rides on leased lands and the surrounding forestlands.

The Kennedy Meadows lands lie astride the access trail into the Emigrant Wilderness from Highway 108. The trailhead is located near USFS's Deadman campground north of Kennedy Meadows, and access to the Wilderness passes south through the resort area and across Kennedy Meadows to the wilderness boundary. Access to the wilderness across the property from the Deadman parking area is not under a formal public easement. The USFS reports that the Summer 2000 trail use count on the trail between Kennedy Meadows and the Emigrant Wilderness may be as high as 16,250 users (see discussion under Relief Reservoir above for details). Through the Kennedy Meadows, this trail uses an old dirt road that ends at the upstream end of the leased lands. The USFS maintains the right to traverse that road for the purpose of resource management on USFS lands.

The present lease term ends at the end of March 2005.

These lands are located on a short reach of the Middle Fork Stanislaus River found suitable for Federal Wild and Scenic River designation and has been recommended to Congress for action. The reach in the leased lands area is classified as Recreational.

Stanislaus National Forest management on adjacent lands includes Recreational Classification for Wild and Scenic River, Scenic Corridor, Roaded Natural and Semi Primitive (Non-Motorized) Recreation Opportunity Spectrums, and Retention Visual Quality Objective.

***Spring Gap Powerhouse Lands.*** These lands are located in the vicinity of the Powerhouse on canyon-side terrain above and on both sides of the Middle Fork Stanislaus River. Recreational access to this land is by trail either from Beardsley Dam or Sand Bar campground. There are no known recreational uses of these lands.

Adjacent Stanislaus National Forest lands are designated as General Forest, Semi Primitive (Non-Motorized) Recreation Opportunity Spectrum, and Retention Visual Quality Objective.

***Stanislaus Forebay Lands.*** These lands are located to the east of the forebay reservoir along USFS Road 4N05. Recreational uses of these lands are limited to a variety of rural recreational activities including low levels of OHV and target shooting. Use levels are unknown but on-site inspection indicates use could be in the range of five visits per weekend-day.

Stanislaus National Forest management on lands adjacent to the forebay lands includes General Forest, Roaded Natural Recreation Opportunity Spectrums, and Modification Visual Quality Objectives.

***Phoenix (FERC 1061)***

***Reservoirs.*** Lyons Reservoir is the only reservoir in this license, although Phoenix Powerhouse flows constitute the major inflow to Phoenix Lake. Phoenix Lake is an important element of the Tuolumne Utility District's (TUD) water system with day use and fishing access facilities and annual visitation of 3,491 (1996) (PG&E Co., 1999a).

***Lyons Reservoir.*** Other than bank angling, Lyons Reservoir presently offers no recreational resource opportunities. Pacific Gas and Electric Company and Tuolumne County have cooperated to exclude boating and other water contact recreation at this license element because it delivers water for domestic consumptive uses. In the interest of water quality, Pacific Gas and Electric Company has eliminated recreation development on some FERC-licensed lands along the south shore, attempted to close access roads to the reservoir other than the main access directly from Highway 108, and has reduced recreation on its FERC-licensed lands to picnicking and bank angling. This closure of potential recreational resources has been instituted in spite of the fact that water delivered from Lyons Reservoir to Phoenix Lake provides for non-powered boating on that facility, that the water exported from Phoenix Lake is treated by the TUD, and that the source of inflows to Lyons Reservoir (Strawberry Reservoir and the South Fork Stanislaus River) support extensive water contact recreation and both powered and non-powered boating uses. The present recreation management of Lyons Reservoir represents a considerable foregone recreational opportunity for at least non-power boating and boat angling which would be of particular importance to local users and most likely has resulted in lower uses and visitation than would have otherwise occurred.

Most of the visitation to the reservoir, reported at about 3,500 in 1996, is angling and most of the angling occurs in the vicinity of the picnic area, off the face of the dam itself, and along the north shore in close proximity of the dam. As a result of this user pattern and the present exclusion of all other potential reservoir recreational uses, potential alternative reservoir operations will have little influence on present recreational uses.

***Other Reservoirs.*** The Phoenix license delivers water to non-license Phoenix Lake, which is owned and operated by the TUD. This reservoir is surrounded by private rural residential development and mostly private-land shoreline access. This reservoir is closed to water contact

activities, but many of the landowners maintain non-powered boats and boat docks. Non-landowner, public access to this reservoir is limited to about a hundred yards of shoreline directly from Phoenix Lake Road. Parking is in several turnouts and access is via some short trails to the shoreline. On-site inspection indicates that public use is primarily bank angling and, given site disturbance and access opportunities, probably rarely exceeds five or seven users at one time.

**Rivers and Streams.** The license influences recreational resources of three stream segments. About 17 miles of the South Fork Stanislaus River between Lyons Dam and New Melones Reservoir is influenced by Lyons Dam minimum flow releases and spills. About two miles of an unnamed channel delivers water from the Phoenix Powerhouse to Phoenix Lake. Recreation along 2.4 miles of the South Fork Stanislaus River is influenced by flow management of the Spring Gap-Stanislaus license and by Pacific Gas and Electric Company management of Watershed Lands. This recreation issue is addressed under Watershed Lands below.

**South Fork Stanislaus River; Lyons Dam to New Melones Reservoir.** This river resource is used mainly for bank uses, day-use, camping, and angling from limited road access locations. On-site inspection indicates use levels appear to be limited and may not often exceed 20 to 30 users at one time. There is a little used exploratory Class V whitewater kayak run on the 5.8 mile section between Italian Bar and New Melones Reservoir. Recommended boating flows are 400-1200 cfs with an optimum flow of about 700 cfs. This resource is only available during Lyons Dam spills. This reach is mostly private lands and a few rural residents find recreational resource values in the streamflow.

**Phoenix Powerhouse Creek.** This is a two-mile reach of channel between the Phoenix Powerhouse and Phoenix Lake. This channel runs through an area of private lands dominated by rural residential, and hobby and small working ranches. Other than at the Powerhouse, this stream provides no public recreation access. The flows provide incidental recreation values to rural residents.

**South Fork Stanislaus River; Spring Gap Road to Lyons Reservoir.** Recreation on this reach is largely controlled by present land management and is addressed under Watershed Lands below. In addition, this reach is a whitewater resource, because this run also includes the reach between Strawberry and Spring Gap Road, and depends on operations of the Spring Gap-Stanislaus license, it is addressed under that license.

**FERC-Licensed Areas.** FERC-licensed areas include lands on portions of the shore and lands adjacent to Lyons Reservoir and lands around the Phoenix Powerhouse.

**Lyons Reservoir Lands.** These lands are the portions of Pacific Gas and Electric Company parcels which are within the FERC license boundary. Through much of the reservoir the license boundary is along the shoreline. On the south shore just east of Lyons Dam these lands extend significantly landward. Present reservoir recreation on all of these lands is limited to shoreline activities

including bank angling. Where FERC-licensed areas extend landward, Pacific Gas and Electric Company has built and maintains a small picnic area with parking for about 15-20 vehicles, a single picnic site, and a toilet facility. These lands had a 1996 reported visitation of about 3,500. These facilities are covered by the FERC license and the FERC recreation plan. The FERC-licensed areas on the south shore include the alignment of the Sugar Pine Railroad that connected Sonora and Strawberry. The abandoned alignment is heavily used by mountain bikers, some hikers, and occasional equestrian users. Traffic counts of this trail are not available, but on-site observations indicate that uses could be in the range of 20-30 visits on weekend days. Trail users often use the trailhead at Center Camp Road, near Twain Harte, and in Strawberry for Lyons Reservoir destination trips of about 4.5 and 11.4 miles, respectively. The USFS presently has an ongoing project to extend this trail resource from the community of Strawberry into the Pinecrest Basin, which will greatly increase the potential use levels.

***Phoenix Powerhouse Lands.*** Surrounding this Powerhouse are several acres of land with no developed recreational resources. Although access to this land is possible, it requires stepping over low barrier fences. About a hundred yards of Phoenix Powerhouse Creek is on these lands, but is fenced off from public access. This area probably only receives incidental day-use recreational visits.

***Watershed Lands.*** There are three areas of Pacific Gas and Electric Company Watershed Lands that have recreational importance. Along about 2.4 miles of the South Fork Stanislaus River above Lyons Reservoir, there are contiguous Pacific Gas and Electric Company lands with recreational uses. A second area is the land at the Lyons Reservoir, but lying outside the FERC license boundary. The third unit of important Watershed Lands is a Pacific Gas and Electric Company parcel on the Main Tuolumne Ditch near Twain Harte.

***South Fork Stanislaus River Lands Above Lyons Reservoir.*** This is a contiguous complex of Pacific Gas and Electric Company parcels that follow a reach of the South Fork Stanislaus River. They average about ½-mile wide along 2.4 miles of the river. They are bisected by the alignment of the abandoned Sugar Pine Railroad, which is now a “jeep track”, and hiking, biking, and equestrian trails between a point near Twain Harte and Strawberry. This jeep track is accessed by vehicles from the Fraser Flat area via USFS Road 4N90 through several unlocked swing gates and drift fences. Road conditions are such that street vehicles can reach the upstream end of the parcels, while progressively downstream the road condition degrades to the point that 4-wheel drive vehicles are required. This trail and jeep track across Pacific Gas and Electric Company lands does not have a perfected public access easement. Recreation on these lands includes vehicle based day-use and camping, angling, and water contact. There are about five well-developed and extensively used vehicle campsites on these lands. On-site inspection indicates that trail use access to these lands from the various trailheads, including trip starts from Lyons Reservoir, may be 20-30 users on weekend days. These users also are day-users and engage in angling and water contact

recreation activities. On-site inspection indicates there could be one car-campsite occupied 1-2 nights a week and there could be 10 instream users per weekend-day.

These lands are surrounded by Stanislaus National Forest lands. The 1990 Forest Plan has prescribed management direction on these land. These directions include General Forest (with Modification Visual Quality Objectives) on the slopes above the Pacific Gas and Electric Company land, and Scenic Corridor (with Retention Visual Quality Objectives) along the South Fork Stanislaus River upstream from the Pacific Gas and Electric Company lands. All of these adjacent USFS lands are directed to a Roaded Natural Recreational Opportunity Spectrum.

***Lyons Reservoir Lands.*** At Lyons Reservoir, these lands are those portions of Pacific Gas and Electric Company parcels outside of the FERC license boundary. This includes land in the downstream portions of the reservoir on both shores. Recreation on these lands is limited to use of the Sugar Pine Railroad alignment (discussed above) on the east and south shore. This trail and jeep track across Pacific Gas and Electric Company lands does not have a perfected public access easement. Four-wheel drive/OHV recreational driving on the west and north shore is also available along USFS Road 4N88 which is accessed from the Spring Gap Road near Spring Gap. Access is limited by locked gates and made available by USFS Special Use Permits for organized activities. Along this road, there are several small and informal camps at the edge of the reservoir that show very little and infrequent use.

The Pacific Gas and Electric Company land on the west and north side of the reservoir are bordered on the west and north by Stanislaus National Forest land. The 1990 Forest Plan has prescribed management direction on these lands. These directions include Scenic Corridor (with Retention Visual Quality Objectives) on the slopes above the Pacific Gas and Electric Company lands. They also are directed to a Roaded Natural Recreational Opportunity Spectrum.

***Main Tuolumne Canal Fishing Access Lands.*** At the intersection of the Main Tuolumne Canal and South Fork Road near Twain Harte, Pacific Gas and Electric Company owns and maintains a fishing access facility. This provides access to a trail along the canal that is used by anglers to fish along several miles of the canal. This canal is planted with catchable rainbow trout by CDFG. The facility provides parking for about 10-12 vehicles. On-site inspection indicates that a total of as many as 10-20 anglers may access the canal at this location on weekend days. In the vicinity of the access facility, this canal runs through an area of rural residential development and several residential roads cross or dead-end at the canal. More anglers may access and fish along this canal from these other points than use the formal access location. These other users are both landowners with property adjacent to the ditch, and local residents who drive a short distance to the canal.

**Bundle 15: Merced River**

The Merced River Bundle is composed of a single FERC-License. Merced Falls License facilities are located on the Mariposa-Merced County line about 30 miles east of the Highway 99 corridor near Modesto.

Merced Falls includes a single dam, reservoir, and Powerhouse located at the dam. The license receives all of its water from the releases of McSwain Dam immediately upstream, and delivers water both to MID's North Side Canal and to the Merced River below the Powerhouse. Flows through the Merced Falls Reservoir and downstream are controlled by releases from McSwain Dam and diversion to the MID canal, and are limited by flow release requirements to the Merced River. Pacific Gas and Electric Company has no rights to storage and is required to pass through the inflows without storage in the project reservoir.

On and around the reservoir, Pacific Gas and Electric Company owns a total of about 20 acres in FERC-Licensed Lands and Watershed Lands together. FERC-Licensed areas include about 19 acres which is comprised of 12 acres below elevation 344 feet (the full reservoir capacity and FERC license boundary), about two acres at the Powerhouse and the recreation site, and five acres in various shoreline areas. Watershed Lands include about one acre along the north shore of the reservoir. Private lands extend landward of FERC-Licensed Lands and Watershed Lands. Reservoir shore lands are used mainly for bank angling and car-top boat launching and, given the possible distribution of FERC-Licensed Lands and Watershed Lands, much of the shoreline uses apparently occur under conditions of trespass.

***Merced Falls (FERC 2467)***

***Reservoirs.*** Merced Falls Reservoir is the only reservoir in this license based on the screening criteria presented in this chapter. The reservoir does not qualify as a key resource due to its lack of operational flexibility. Pacific Gas and Electric Company has no water storage rights at Merced Falls Reservoir. Inflows, diversions at the dam, and river return flows are controlled by other water entities and Pacific Gas and Electric Company is specifically required to operate the reservoir to match outflows at the dam to inflows from McSwain Reservoir. Therefore, the reservoir surface changes very little over any time frame.

***Merced Falls Reservoir.*** This is a small impoundment with essentially no hydroelectric operational flexibility that could provide for alternative water surface elevations. It is used almost exclusively for bank and boat angling. Table 4.6-19 outlines the recreational facilities provided at the Merced Falls license.

**Table 4.6-19 Merced Falls Recreational Facilities**

Name	Type of Facility	Number of Units	All on Pacific Gas and Electric Company Property? If no, list other owner	Visits in 1996
Located in Merced Falls Area				
Rivers Edge	Day Use, Fishing Access	N/A	Yes	3,331
Merced Falls	Day Use, Car-top boat launch	N/A	Yes	1,569
Dispersed Use	Access Areas	N/A	Unknown	4,117

Source: Pacific Gas and Electric Company, 1999a

Anglers use a number of different sites including the formally developed access location of River’s Edge where they can launch small car-top boats. Recently, the County Road J16 Bridge over the reservoir has been re-built to specifically include angler shoulders and is used heavily for angling. Bank angling also occurs east and west from the J16 Bridge, along both the north and south shores, and in the upper end of the reservoir near MID’s Merced Falls recreation facility. On the north shore just east of the J16 Bridge, an informal trailered-boat launching site is used to launch boats slightly larger than car-top craft. Due to ground conditions, this site is limited to small trailers and, therefore, small craft.

The California Department of Fish and Game (CDFG) annually plants the reservoir with catchable trout. Angling is the main recreational activity. Annual visitation in 1996 was reported at about 9,000 with 4,900 occurring at two developed recreational sites (PG&E Co., 1999a). These sites are River’s Edge, a Pacific Gas and Electric Company facility adjacent to the Powerhouse lands, and Merced Falls, an MID facility on Pacific Gas and Electric Company lands near the head of the reservoir. Both facilities are maintained by MID. These facilities include paved parking, sanitary toilets, and although only the Merced Falls facility was designed for such, both provide car-top boat launching capabilities. There are about 4,100 annual visits that occur at various non-developed recreation sites and areas. The J16 Bridge attracts many anglers who park in unimproved pullouts along J16. Both the north and south shores of the reservoirs are used for angling accessed both by land (although much of the shoreline is private and trespass is necessary) and by boat.

There are several large water-based recreational facilities in the vicinity of the license that offer many recreational resources. These include MID’s Lake McSwain and Lake McClure, which offer large capacity reservoir boating, angling, camping and day-use resources. About five miles west of

the license is Henderson Park, which is located along the Merced River, and is owned and operated by Merced County Parks and Recreation Department. This facility offers water-based recreation on the Merced River, and many rural park facilities such as play areas and picnic sites. All of these sites are user fee based. There are two other County Park fishing access sites on the Merced River within four miles of the license, Cuneo and Crocker Huffman Park. Cuneo is informal and has no access fee while Crocker Huffman Park is gated, in very poor condition and is user fee-based. Conversely the recreational facilities, opportunities, resources, and uses at the Merced Falls are notably low key, informal, in good condition, and are non-fee access. These attributes make the license distinctive in the area and from the perspective of local users, an important aspect of the resource values.

***Rivers and Streams.*** The only river resource in the license area is the Merced River between the Merced Falls Dam, and the impoundment created by the Snelling Diversion Dam.

***Merced River, Merced Falls Dam to the Snelling Diversion Impoundment.*** This is about a two-mile long section of river with low gradient riffles and well developed riparian vegetation. Throughout this reach, both banks are under private ownership. It is reported to be a good angling resource, and conflicts over angling trespass vary with particular landowner interests in policing their properties. Access to the reach of river is sometimes from the Merced Falls Reservoir where anglers land their boats along the south shore near the dam and walk downstream along the river. It has also been reported that canoeists use this same access approach. Present uses of this resource are a function of landowner tolerance for trespassers. Flows in this reach of river can not be influenced by a new owner.

***FERC License Areas.*** The Pacific Gas and Electric Company lands covered by the FERC license include 12 acres of the lake surface below the full-pool elevation (344 feet), and about seven acres at the Powerhouse, which includes Pacific Gas and Electric Company's River's Edge fishing access facility, operated and maintained by MID, and in other locations in the reservoir shoreline area. Due to imprecision in the Pacific Gas and Electric Company data files, it is difficult to determine where and to what degree Pacific Gas and Electric Company owned FERC-Licensed Land extends landward from the full reservoir pool elevation. The recreational uses of these lands includes reservoir access, bank angling, parking, day-use car-top launching, etc.

***Watershed Lands.*** Watershed Land includes about one acre of land that strip-boards the north shore of the reservoir in the vicinity of MID's Merced Falls recreation facility. These lands are used for foot access to bank angling locations along the reservoir. Pending an explicit resolution of the location and extent of FERC-licensed areas, this one acre may be the only land on the shoreline of the Merced Falls Reservoir that remain available for future recreational resource and facility development and enhancement for public uses.

### 4.6.4.5 Kings Crane-Helms Regional Bundle

#### Regional Setting

##### *Crane Valley*

The Crane Valley Bundle includes one FERC-licensed project, Crane Valley project. The Crane Valley license facilities, which are located along the western edge of the Sierra National Forest approximately 40 miles northeast of Fresno, are part of the upper San Joaquin River system. The license is within Madera County near the community of Oakhurst. In addition to Oakhurst, which is the largest community in the vicinity of license facilities, small unincorporated rural communities such as Yosemite Forks, Bass Lake, The Forks, Wishon, North Fork, and South Fork are located near the license. To some extent, these communities are economically dependent on spending by recreationists visiting facilities, although Oakhurst and Yosemite Forks are also heavily dependent on economic activity generated by Yosemite National Park related traffic.

The Sierra National Forest, which surrounds many of the facilities associated with Crane Valley, covers an extensive portion of the central Sierra Nevada and its foothills to the west, and includes numerous developed recreation sites and wilderness areas within its boundary. In 1982, recreation visitor days (RVDs) in the forest totaled approximately 4.25 million, including 1.5 million RVDs in developed sites, 2.5 million RVDs in dispersed areas, and 0.25 million RVDs in wilderness areas. (RVDs represent the number of twelve-hour periods of recreation use, in any combination of people, in a given location.) Overall recreation demand is projected to reach approximately 6.2 million RVDs by 2015, representing an average annual increase of 1.4 percent (USFS, 1992b).

The Sierra National Forest supports numerous and varied recreational activities, including camping, boating, fishing, swimming, hiking, hunting, horseback riding, and skiing. The forest's campgrounds have a total capacity of 8,500 persons at one time (PAOT). Most of the forest's recent campground development has been undertaken by the private sector, including campgrounds developed at FERC-licensed hydroelectric facilities. The Sierra National Forest also contains numerous locations with boat-launching facilities and day-use areas. Additionally, the forest offers 1,100 miles of hiking, biking, and equestrian trails, and fishing is available along approximately 1,800 miles of streams and rivers and at 480 lakes (USFS, 1992). No designated wilderness areas or Wild and Scenic Rivers are located near Crane Valley facilities.

Although Crane Valley facilities are generally isolated from other developed recreational facilities, the region contains a number of major recreation sites and areas. For example, the southern entrance to Yosemite National Park, which can be reached by passing through Oakhurst, is approximately 16 miles north of Bass Lake (see Figure 4.6-17), the Crane Valley license's largest recreation site. To the southeast are Huntington Lake and Shaver Lake, which are popular boating facilities. Additionally, the Millerton Lake State Recreation Area, a popular site for camping, boating, fishing, and swimming, is located approximately 40 miles southwest of Bass Lake. The San Joaquin River, which is downstream of the Crane Valley license, supports boating, fishing, and

swimming activities at various locations inside and outside of the boundaries of the Sierra National Forest. Although no road access is available to most of the river segment potentially affected by the license (i.e., the reach between the San Joaquin River's confluence with North Fork Willow Creek and Kerckhoff Reservoir), a trail loop provides access to this segment from Redinger Lake Road.

### ***Kerckhoff***

The Kerckhoff Bundle includes one FERC-licensed project, Kerckhoff project. License facilities are located downstream of Crane Valley, approximately 30 to 40 miles northeast of the Clovis-Fresno metropolitan area. License facilities are mostly located along the western edge of the Sierra National Forest in Madera and Fresno Counties. No large communities are located near Pacific Gas and Electric Company's license facilities, although the small communities of Auberry and New Auberry are located approximately seven miles south of Kerckhoff Reservoir (see Figure 4.6-18), and the communities of North Fork and South Fork are located approximately eight miles north of the reservoir.

Recreational facilities and uses associated with the Sierra National Forest have been previously described for the Crane Valley Bundle. No designated wilderness areas or Wild and Scenic Rivers are located near Kerckhoff.

The Kerckhoff license operates on the San Joaquin River. Upstream of the license on the San Joaquin River are two lakes used by recreationists: the Mammoth Pool Reservoir and Redinger Lake. Mammoth Pool Reservoir, which is isolated from Kerckhoff Reservoir by a series of secondary roads, supports two campgrounds and offers boat launching facilities. Redinger Lake, a Southern California Edison (SCE) facility that is approximately five miles upstream of Kerckhoff Reservoir, offers no camping facilities, although boat launching facilities are available. The Millerton Lake State Recreation Area, located on the San Joaquin River approximately eight miles downstream of Kerckhoff Reservoir, offers substantial developed recreational facilities, including numerous campgrounds, boat launching facilities, and resort developments.

Kayakers, as previously described for the Crane Valley Bundle, use the reach of the San Joaquin River upstream of Kerckhoff Reservoir, specifically Smalley Cove as one of two takeout areas. The reach of the San Joaquin River downstream of Kerckhoff Reservoir between the reservoir and Millerton Lake, which is known as Patterson Bend, is not accessible by road except for the stretch immediately above Millerton Lake. The Patterson Bend area receives light use by anglers and others willing to hike into the area. This reach of the river also gets some use by kayakers who put in the river below Kerckhoff Dam. Further downstream, the Squaw Leap Management Area, administered by the BLM, provides for low-intensity hunting and hiking uses, although a small campground is also provided.

### ***Kings River***

The Kings River Bundle is composed of three FERC-licensed areas, including the Helms Pumped Storage, the Haas-Kings River, and the Balch. These facilities are located in Fresno County, 90-100 miles northeast of Fresno, within the Sierra National Forest. No large communities are situated near the facilities; however, Courtright Lake Village, a collection of summer cabins, is located near the western shore of the license's Courtright Reservoir (see Figure 4.6-19), and Wishon Village, a recreational resort, is located at the southern end of Lake Wishon (see Figure 4.6-20).

Recreational facilities and uses associated with the Sierra National Forest have been previously described for the Crane Valley Bundle. Designated wilderness areas are located adjacent to facilities associated with the Helms Pumped Storage license and the Haas-Kings River license. From the northwestern edge of Courtright Reservoir, the 30,000-acre Dinky Lakes Wilderness extends northward, with trail access to this popular wilderness area available from the western side of the reservoir. The John Muir Wilderness, a 315,790-acre wilderness area, lies adjacent to the eastern sides of both Courtright and Wishon Reservoirs. Trail access is available to this heavily used wilderness from the southeast corners of both reservoirs.

Recreational uses upstream of the Kings River Bundle are primarily associated with dispersed backcountry recreation in the Dinky Lakes Wilderness and the John Muir Wilderness. Access to these wildernesses is available from a number of trailheads in the Sierra National Forest, including the trailheads near license reservoirs. Downstream of Courtright and Wishon Reservoirs, recreation is primarily associated with use of the North Fork Kings River, the main fork of the Kings River, and Pine Flat Reservoir. Between Wishon Reservoir and its confluence with the main fork of the Kings River, the North Fork Kings River is relatively remote, with dispersed use primarily by serious kayakers, anglers, and backpackers. The main fork of the Kings River, which is designated as a Wild and Scenic River, is used for camping, fishing, kayaking, and private rafting, and is served by commercial whitewater rafting companies. The put-in locations for commercial whitewater rafts are upstream of the section of the Kings River potentially affected by the license, but a take-out area is located on the river near Pine Flat Reservoir, downstream of license facilities. Pine Flat Reservoir is a large, regional, multi-use facility operated by the United States Army Corps of Engineers. With 5,950 surface acres and 67 miles of shoreline, Pine Flat Reservoir is a major source of high-density, water-oriented recreation, supporting camping, picnicking, swimming, boating, water skiing, and fishing. Boating facilities at the reservoir include public boat launching facilities and commercial marinas.

### ***Tule River***

The Tule River Bundle includes one FERC-licensed project, Tule River project, which is located in Tulare County approximately 40 miles northeast of Porterville. No communities are located near license facilities; however, approximately 50 homes comprising the Doyle Springs Homeowners'

Association are located on private land just north of the license's Tule River Diversion Dam on the North Fork of the Middle Fork (NFMF) Tule River. Most of these homes, which are outside of the license's FERC boundary, are used only during summer months, although no seasonal use restrictions exist. The nearest community is Springfield (population 8,400), located on the Middle Fork of the Tule River approximately 12 miles southwest of the license.

The license facilities are within the boundary of the Sequoia National Forest, whose 1.1 million acres offer a broad spectrum of year-round recreational opportunities, including camping, sight-seeing, boating, kayaking, fishing, hiking, horseback riding, skiing, and resort-based activities. High-use areas within the forest include the Kern and Tule Rivers, Hume Lake, parts of the Lloyd Meadows road area, and the Kern Plateau. Recreation use of the forest was estimated at approximately 2.5 million RVDs in 1982, including 1.6 million RVDs in dispersed areas and 0.9 million RVDs in developed recreation areas. Use is projected to increase to almost 4.5 million RVDs in 2020, indicating an average annual growth in recreation use of 2.1 percent (USFS, 1988a). No designated wilderness areas or Wild and Scenic Rivers are located in the vicinity of Tule River facilities. Sequoia National Park, a major outdoor recreation attraction, is located approximately eight air miles north of facilities, although no direct road access to the park is available from the area.

No reservoirs or developed recreation sites are located upstream of license facilities, which are near the end of a county road on the NFMF Tule River and Hossack Creek. Upstream recreation uses are primarily low-level dispersed uses associated with hiking and fishing. Two hiking trails leading north into the Sequoia National Forest begin near Doyle Springs. Wishon Campground, which is discussed in more detail below, is located adjacent to license facilities on the NFMF Tule River, and provides access for swimming, fishing, and hiking along the river.

Downstream to its confluence with the Middle Fork Tule River, the NFMF Tule River supports fishing at points where the county road provides access to the river. Downstream to Springville, the Middle Fork Tule River is a popular area for fishing, swimming, sunbathing, picnicking, and hiking. Access to the river is available at various points along State Route 190, including "The Stairs" (a day-use recreation area), the Upper Coffee Camp Day Use Area, the Lower Coffee Camp Day Use Area, and the Lumreau River Access day use area, all operated by the USFS. Access for anglers is also available from turnouts along State Route 190. The Middle Fork Tule River is annually stocked with rainbow trout by the CDFG (Stienstra, 1995). Coffee Creek Campground, located approximately two miles downstream of the confluence of the Middle Fork Tule River and the NFMF Tule River, provides camping facilities. Overnight camping is also allowed on lands within the Sequoia National Forest in dispersed areas with a permit.

### ***Kern Canyon***

The Kern River Bundle includes one FERC-licensed project, Kern Canyon project, which is located in Kern County approximately 10-15 miles northeast of Bakersfield and Oildale. No communities are near license facilities, which are located along the lower Kern River near State Route 178.

The Kern Canyon license is near the southwest corner of the Sequoia National Forest's Greenhorn Ranger District, with the license's Kern Canyon Diversion Dam located inside the forest boundary and its Kern Canyon Powerhouse located just outside of the forest boundary. Recreational facilities and uses associated with the Sequoia National Forest have been previously described for the Tule River Bundle. Total recreation use of the Greenhorn Ranger District was estimated at 529,100 RVDs in 1992 (Southern California Edison, 1994). No designated wilderness areas or Wild and Scenic Rivers are located near Kern Canyon license facilities.

The Kern Canyon license is situated in a narrow, steep canyon, which provides relatively few opportunities for developed recreation sites. Lake Isabella is located 34 miles upstream of the license facilities. This lake is heavily developed for recreational purposes, providing numerous campgrounds, day-use areas, private marinas, and boat ramps. Recreational use of the lower Kern River upstream of the Kern River license is heaviest in the reach of the river between Democrat Beach (approximately 10 miles east of the license facilities) and Lake Isabella (Southern California Edison, 1994). Recreational use in this area is water-oriented, including fishing, whitewater rafting, sightseeing, picnicking, and swimming. Access to this reach of the river is provided by four developed recreational facilities operated by the Sequoia National Forest through concessionaire agreements. These include the Live Oak, Lower Richbar, and Upper Richbar picnic grounds, located approximately five miles east of the Kern River Diversion Dam, and the Democrat Beach/Take Out area, approximately 15 miles east of the license facilities. Additionally, individual and commercial whitewater rafting permits are issued by the Sequoia National Forest, which provides for extensive rafting use from June through August in the reach of the Kern River from Keysville (near Lake Isabella) to just above Southern California Edison's Kern River No. 1 Diversion Dam, upstream of Kern River facilities.

Approximately five miles downstream of Kern River license facilities, developed recreational facilities are available at Kern River State Park, Kern River County Park, and Kern County's Hart Memorial Park, all located along the stretch of the Kern River that flows into and through Lake Ming. An improved public campground is located at Kern River County Park, and a free public boat launch ramp is available at Lake Ming. Lake Ming is used for boating and fishing, water skiing, and sailboating (swimming is not allowed), and supplies are available for day and overnight use. Dispersed uses, including fishing, occur along the reach of the river between the Kern Canyon powerhouse and Lake Ming, although access, provided by unimproved dirt roads, is limited by difficult terrain along much of this reach.

## **Local Regulations and Policies**

### ***Crane Valley***

The major facilities associated with the Crane Valley Bundle are contained within a designated Sierra National Forest Developed Recreation Management Area. According to the forest's land and resource management plan, Developed Recreation Management Areas are popular recreation sites with considerable amounts of capital investments in recreational facilities (USFS, 1991). Program emphasis is on developed recreation at appropriate levels of development and intensity. Regulated timber harvest is allowed on suitable land where compatible with primary goals. Specific management standards and guidelines apply to the Bass Lake area.

### ***Kerckhoff***

Much of the land associated with the Kerckhoff Bundle, including Pacific Gas and Electric Company lands along the northern shore of Kerckhoff Reservoir and private lands downstream of the reservoir, are outside of the boundary of the Sierra National Forest. The land surrounding the southern half of the reservoir is located in a Management Area designated by the Sierra National Forest as Front Country. According to the forest's land and resource management plan (USFS, 1991), the Front Country Management Area is managed to emphasize wildlife and range management activities, with adequate protection of watershed values. Licenses benefiting multiple resources (i.e., wildlife, range, and fuel management) are the management objectives.

### ***Kings River***

The major recreation sites associated with the Kings River Bundle, including Courtright, Wishon, and Black Rock Reservoirs and the Kings River downstream of the reservoirs, are contained within a designated Sierra National Forest Developed Recreation Management Area. According to the forest's land and resource management plan, Developed Recreation Management Areas are popular recreation sites with considerable amounts of capital investments in recreational facilities. Program emphasis is on developed recreation at appropriate levels of development and intensity. Regulated timber harvest is allowed on suitable land where compatible with primary goals; however, timber harvests are not allowed near Courtright and Wishon Reservoirs under most circumstances. Specific management standards and guidelines apply to the Courtright and Wishon Reservoir areas. Relevant recreation policies contained in the Fresno County General Plan were discussed previously for the Kerckhoff Bundle.

### ***Tule River***

The Sequoia National Forest has designated much of the Tule River Bundle vicinity within the Roded Natural classification of the Recreation Opportunity Spectrum (ROS), which is a Forest Service management tool for defining desirable public recreational opportunities and identifying portions of the recreation spectrum that a given national forest might provide. According to the ROS Users Guide, the Roded Natural Area is characterized by predominantly natural-appearing

environments with moderate evidences of the sights and sounds of humans. Interaction between users may be low to moderate, but with evidence of other users prevalent. The Forest Service Management Area Prescription-Management Emphasis of the Tule River Bundle vicinity is Water-Oriented Recreation along the NFMF Tule River and MF Tule River and Developed Recreation around Doyle Springs (USFS, 1988c). In the Water-Oriented Recreation area, the management emphasis is on maintaining and providing recreational opportunities in developed sites and concentrated use areas adjacent to streams, rivers, or reservoirs. Developments will be managed to enhance and emphasize dispersed recreation activities such as rafting, sunbathing, swimming, and fishing in adjacent water bodies. Management emphasis in the Developed Recreation area in conifer stands is on maintaining and providing trailheads to facilitate dispersed uses in outlying areas, campgrounds, and picnic areas.

### ***Kern Canyon***

The Sequoia National Forest has categorized much of the Kern River corridor in the vicinity of Kern River Bundle facilities within the ROS Rural classification, and has designated the Management Area Prescription-Management Emphasis for the corridor as Water-Oriented Recreation (USFS, 1988c). In the Water-Oriented Recreation area in blue oak savanna, the management emphasis is on maintaining and providing campgrounds and picnic areas. Management emphasis is also on driving for pleasure and viewing scenery. All developments will be managed to enhance and emphasize dispersed recreation activities such as rafting, sunbathing, swimming, and fishing in adjacent water bodies. Recreational opportunities in the Water-Oriented Recreation area are managed to occur in developed sites and concentrated use areas adjacent to streams, rivers, or reservoirs.

### **Bundle 16: Crane Valley**

#### ***Crane Valley (FERC 1354)***

Pacific Gas and Electric Company's Crane Valley license is located on the South and North Forks of Willow Creek. The South Fork is a tributary to the North Fork of Willow Creek, which is a tributary to the San Joaquin River. The license consists of five powerhouses that are fed mainly by water stored in Bass Lake, a 45,410 acre-feet reservoir located about 42 miles east of Fresno, in Madera County. Water stored in Bass Lake is released through Bass Lake Dam to the Crane Valley Powerhouse. Water discharged from the Crane Valley Powerhouse is then conveyed to San Joaquin Powerhouse No. 3, San Joaquin No. 2 Powerhouse, San Joaquin No. 1 Powerhouse, and eventually to the A.J. Wishon Powerhouse. The latter is located on the bank of the San Joaquin River and discharges to Kerckhoff Reservoir, which is part of the Kerckhoff license described later in this chapter. Operation of the Crane Valley license affects flow in the South and North Forks of Willow Creek, and in the San Joaquin River.

**Reservoirs.** Key reservoirs in the Crane Valley system include Crane Valley Reservoir, more commonly known as Bass Lake, Manzanita Lake, and Corrine Lake. Other reservoirs and lakes in the system include Chilkoot Lake, the San Joaquin 3 Forebay, and the San Joaquin 2 Forebay.

**Bass Lake.** Bass Lake is located near the southwestern border of Sierra National Forest, in Madera County, approximately four miles east of the town of Oakhurst, and approximately 42 miles northeast of Fresno. Bass Lake's primary route access is by County Road 222. Secondary route access is via County Road 426, County Road 222 North, and County Road 274. The lake is at an elevation of 3,400 feet and has 14 miles of shoreline and 1,165 surface acres of water (PG&E Co., 1986b). The reservoir is approximately 4.5 miles long and 0.5 miles wide at its widest point, and is considered a warm water lake with water temperatures reaching up to 80 degrees in summer months.

Commissioned in 1919, Bass Lake is the storage reservoir for the entire Crane Valley system. The reservoir is located immediately north of the Crane Valley Powerhouse and serves as its forebay. The reservoir has 45,410-acre feet of usable storage capacity at approximately 3,377 feet above mean sea level (msl) (PG&E Co., 1999b). The reservoir is also a recreational lake surrounded by public campgrounds, picnic areas, commercial recreational facilities and business, and private residences. Bass Lake is a popular recreation destination that offers a variety of private and public recreational opportunities, most of them lake-oriented. Lake-dependent activities include flatwater sports, such as boating, waterskiing, jet skiing, swimming and fishing. Recreational facilities at the lake include campgrounds, picnic grounds, resorts, vacation homes, boating docks, marinas, beaches, and trailheads.

Bass Lake has about 640,000 visitor days annually. The lake is used all year-round, although most recreational use at Bass Lake occurs between Memorial Day and Labor Day. Use corresponds to the summer's traditional vacation time and warm weather, and to the lake's water levels. In addition to public recreational facilities, the residential facilities around the lake account for considerable use of the lake.

Bass Lake's primary recreation use is for water-related activities. The most prevalent activities are the flat-water sports of boating, fishing, waterskiing, jet skiing, and swimming. Additionally, the lake area is used for scenic viewing, camping, picnicking, and day hiking. The lake is also used as a staging destination for visitors going to and from nearby national forests, parks, and wilderness areas. Fishing on the lake generally increases in the non-summer months. During summer, the presence of motorized watercraft tends to deter fishing recreationists.

Bass Lake's tourist draw affects the nearby communities of Oakhurst, North Fork, and Auberry, which are heavily recreation-dependent. These towns are all within five to ten miles of the lake. Bass Lake businesses serve many tourists whose ultimate recreation destinations are other nearby national forests, parks, and wilderness areas (e.g., Yosemite National Park, Ansel Adams

Wilderness, John Muir Wilderness, Kaiser Wilderness, Dinky Lakes Wilderness, Sierra National Forest, and, to a lesser extent, Sequoia National Park).

Although located entirely within the Sierra National Forest, Bass Lake is primarily on private land. Pacific Gas and Electric Company possesses large holdings, including the land beneath the lake. The lakeside property is a mixture of Pacific Gas and Electric Company land and Sierra National Forest land, and other private residential and commercial land.

The lake is long and narrow, and almost all of its shoreline is located on the lake's northeast and southwest sides. The northeast side of the lake is extensively developed and includes private residences, commercial businesses, and two Forest Service recreational facilities. Most lake access on the northeast side is limited to private residents' lakefront property. Public access to the lake is available via a public beach and shoreline picnic area, and a private commercial marina. The western half of this shoreline is relatively shallow with a mild slope. These characteristics make the shore more prone to impacts from lower lake levels. Country Road 274 traverses the lake's northeast side.

The southwest side of the lake is much less developed and maintains its forest character. This area is predominantly Forest Service campgrounds and day-use areas. This side also has a public boat launch. Much of the southwestern shoreline is lined with rock riprap for erosion control. Country Road 222 parallels the southwest shoreline.

The northern tip of the lake includes a Forest Service group recreation facility, the California Land Management visitor information office, and private residences and commercial businesses. The northern end of the lake is the shallow end and is first and foremost affected by lower lake levels. Just above the north shore is the County Road 222 and Country Road 274 junction.

The Crane Valley Dam, with the powerhouse intake and dam spillway areas, marks the southern tip of the lake. This area is cordoned off with a buoy line; no swimming or public watercraft are allowed and lakeshore access is restricted. Due to the southern end's steeper shoreline and proximity to the dam, lake levels here do not decline significantly.

The Forest Service has developed campgrounds and day-use recreational facilities around the lake. Public recreational facilities are located on both Forest Service lands and Pacific Gas and Electric Company lands leased to the Forest Service. All Forest Service recreational sites in the Bass Lake Recreation Area are administered under a special use permit to California Land Management and are managed under the National Recreation Reservation System.

Pacific Gas and Electric Company has an agreement with the Forest Service to partially fund rehabilitation of two public recreational facilities at Bass Lake. Pacific Gas and Electric Company has committed to pay the Sierra National Forest 50 percent of the rehabilitation costs (up to a maximum of \$100,000) for Lakeside Picnic Area, and 50 percent rehabilitation costs for The Forks

Campground. The Forest Service has approved the use of Capital Improvement Funds for the license. This agreement is part of Pacific Gas and Electric Company's negotiations for a new license for the Crane Valley license facilities, and the contributions are considered part of Pacific Gas and Electric Company's \$6,000,000 funding commitment for resource mitigation and improvement measures (PG&E Co., 2000c).

Bass Lake is subject to boating regulations set by both the California DBW (Cal Boating) and Madera County. The Madera County Sheriff enforces both State and County boating regulations. The Sheriff has boat patrols on the lake during the high season, from mid-May to mid-September. The Sheriff's Tower is located in the center of the lake on the northwestern lakeshore.

Recreational opportunities on Bass Lake are substantially affected by the lake's water level. The operation of lake levels is directed primarily by the Miller-Lux Agreement, as well as the 1989 Water Surface Management Plan. Water storage levels are also dictated by the water rights that are partially owned by Madera Irrigation District (MID) and Pacific Gas and Electric Company

Bass Lake water levels are tightly managed by a 1909 adjudicated water rights agreement known as the Miller-Lux Agreement (PG&E Co., 1999a), which is currently administered by the U.S. Bureau of Reclamation (USBR). The terms of the Miller-Lux Agreement require Pacific Gas and Electric Company to maintain Bass Lake storage at or below 60 percent maximum capacity by September 15, and at or below 50 percent maximum capacity between November 1 and December 31. Any water stored in excess of these levels is subject to call by the USBR for release downstream to Millerton Reservoir (PG&E Co., 1999c). In addition, the USBR can call Bass Lake water during certain times of the year (primarily fall and winter) in response to water users downstream on the San Joaquin River who have senior water rights (PG&E Co., 1999a).

In recent years, the Bass Lake Homeowners Association and Pacific Gas and Electric Company have requested from the USBR a variance to allow Pacific Gas and Electric Company to maintain lake levels at a higher elevation later in the year to benefit recreational users, which, in turn, benefits local tourist-dependent businesses. The USBR considers the requests on a year-by-year basis, and has permitted the variance in seven of the last ten years. The Proponent's Environmental Assessment (PEA) states that "these variances have somewhat altered the pattern of water use at Bass Lake" (PG&E Co., 1999a).

*Bass Lake Recreational Facilities.* Bass Lake has a total of nine campgrounds and twelve day-use recreational facilities near the lakeside. Six of the campgrounds and twelve of the day-use recreational facilities are public, operated by California Land Management. Three private organization camps are located near the lake.

*Campground Facilities.* Surrounding Bass Lake are two public group campgrounds, four public family campgrounds, and three organizational camps. The capacities and use of Bass Lake recreational facilities are presented in Table 4.6-20.

**4.6 Recreation**

**Table 4.6-20 Bass Lake Recreational facilities – Capacities and Use**

Facility	PAOT* Capacity of Facility	1984 Use	
		% Capacity	Visitor Days
PSEA Camp a.k.a. Camp Wishon Cove	112	95.0	11,172
Crane Valley Group Campground	155	22.0	7,293
Denver Church Campground	185	76.6	29,627
Emerald Cove Retreat	140	95.0	13,965
Forks Campground	164	65.4	13,228
Lupine/Cedar Campground	317	51.6	17,175
Recreation Point Campground	135	135	5,429
Spring Cove Campground	325	58.2	19,861
Wishon Point Campground	350	58.3	21,425
Yosemite Skylakes Camp	260	95.0	25,935
Falls Day Use Area	100	53.8	12,993
Lakeside Day Use Area	75	51.6	9,345
Little Denver Church	281	n.a.	n.a.
Pine Point Day Use Are	85	68.9	14,143
Pine Slope Day Use Are	50	74.0	8,935
Recreation Point Day Use Area	300	28.3	20,505
Rocky Point Day Use Are	80	54.6	10,549
Willow Cove2	n.a.	n.a.	n.a.
Wishon Beach Boat Launch	250	45.0	25,152
<b>Commercial</b>			
Ducey's On the Lake Lodge	312	75.0	18,900
The Forks Resort (SUP)	42	80.0	3,528
Millers Resort (SUP)	48	85.0	4,284
Pines Resort	504	80.0	42,336
Manzanita Lake Day Use Area	88	46.0	8,500
Corrine Lake Day Use Area	n.a.	n.a.	2,000

\*People at one time; n.a. = not available

1 Schreiber, pers. comm.

2 Undeveloped Forest Service day-use recreation facility.

Source: PG&E Co., 1986a, and Schreiber, pers. comm.

The Forest Service's two group campgrounds are Recreation Point Youth Camp and Crane Valley Group Campground (see Table 4.6-21). Recreation Point campground, on the northern shore of the lake, has four separate sites which have a total capacity for 155 people. Crane Valley Group Campground is approximately 1/3-mile northeast from Bass Lake, off Country Road 222. Group campgrounds have picnic tables, fire rings and/or grills, trash receptacles, and sanitary facilities, but no shower facilities. Recreation Point also has an open amphitheater that comfortably seats approximately 50 to 75 people.

**Table 4.6-21 Group Campground Sites at Bass Lake**

Group Campgrounds	Drinking Water	Flush or Vault Toilets	Lake Swimming	Total PAOT* /Parking
Camp Wishon Cove/ PSEA Camp	Yes	Flush	Yes	112/ n.a.
Crane Valley	No	Vault	No	156/ 59
Recreation Point:				
The Knoll	Yes	Flush	Yes	30/ 8
Scout	Yes	Flush	Yes	45/ 15
Lagoon	Yes	Flush	Yes	30/ 8
Acorn	Yes	Flush	Yes	50/ 16
TOTAL:	—	—	—	423/106

\*People at one time; n.a. = not available

Sources: Schreiber, pers. comm.; National Recreation Reservation Service, pers. comm.; USDA, Forest Service, 1989; and United States Geological Survey, 1993.

The four public family campgrounds are Forks, Lupine-Cedar, Spring Cove and Wishon Point, all located on the northeast side of the lake and operated by a concessionaire (see Table 4.6-22). These four campgrounds have a total of 254 units and 123 trailer spaces. Single family sites accommodate up to six people, and double sites accommodates up to twelve people. The family campgrounds provide standard amenities: picnic tables, fire rings and/or grills, trash receptacles, toilets, and piped water.

**Table 4.6-22 Family Campground Sites at Bass Lake**

Family Campgrounds	No. of Units	Trailer Spaces	Drinking Water	Flush or Vault Toilets	Lake Swimming	Total PAOT* /Parking
Emerald Cove Retreat	10	n.a.	Yes	No	No	140/ n.a.
Forks	31	4	Yes	Flush	Yes	186/ 31
Lupine/Cedar	113	85	Yes	Flush	Yes	678/ 113
Spring Cove	63	10	Yes	Flush	Yes	378/ 63
Wishon Point	47	24	Yes	Vault	Yes	414/ 47
Yosemite Skylakes Camp	20	n.a.	Yes	Flush	Yes	260/ n.a.
TOTAL	254	123	—	—	—	2,056/ 254

\*People at one time; n.a. = not available

Sources: National Recreation Reservation Service, pers. comm; Pacific Gas & Electric Company, 1986a; Schreiber, pers. comm.; USDA, Forest Service, 1989; and United States Geological Survey, 1993.

No shower facilities are available at the family campgrounds. Each of these sites has direct access to lake swimming. All campgrounds except Lupine-Cedar usually close for the winter.

Yosemite Skylakes Camp and Emerald Cove Retreat are organizational camps operating under Forest Service Special Use Permits. Emerald Cove Retreat is located on the southwestern side,

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above Pines Village approximately one mile north from the lakeshore. Yosemite Skylakes Camp is located on the southwestern side, between Lupine-Cedar Bluffs and Spring Cove campgrounds.

Pacific Gas and Electric Company has a private employee campground called Pacific Service Employees Association Camp (PSEA Camp), also known as Camp Wishon Cove. This site also contains private lots that have been sold by Pacific Gas and Electric Company. This site is on the southwestern side of the lake, near the dam and south of Wishon Cove. The facility has tent camping, motel-style rooms, and housekeeping cabins. The facility has a dock and swimming platform which have signage indicating they are for private use only. Lakeshore access, however, is open to the public, in accordance with FERC regulations.

*Day-Use Facilities.* Twelve public day-use recreational facilities are situated around Bass Lake, including a public boat launch (see Table 4.6-23). Three of the facilities are group picnic areas within the Recreation Point area on the north shore. There are five single-family picnic areas on the southwest side and two on the northeast side. The picnic areas are equipped with picnic tables, fire grills, trash receptacles, and sanitary facilities. Paved parking is available at Recreation Point and unstructured parking at the other facilities. All facilities have direct swimming access except Oak Point, which is separated from the lakeshore by Cove Picnic Area.

**Table 4.6-23 Day Use Sites at Bass Lake**

Picnic Grounds/ Day Use Areas	No. of Units	Drinking Water	Flush or Vault Toilets	Lake Swimming	Total PAOT*/ Parking
Denver Church	29	Yes	Flush	Yes	112/ 29
The Falls	6	Yes	Flush	Yes	100/ 32
Lakeside	6	Yes	Flush	Yes	52/ 13
Little Denver Church	7	Yes	Flush	Yes	28/ 7
Pine Point	12	Yes	Flush	Yes	68/ 17
Pine Slope	8	Yes	Flush	Yes	52/ 13
Recreation Point:					n.a./200
Cove	50	Yes	Flush	Yes	n.a
Oak Point	50	Yes	Flush	No	n.a.
South Park	100	Yes	Flush	Yes	n.a.
Rocky Point	8	Yes	Flush	Yes	64 /16
Willow Cove	Undeveloped	No	No	Yes	n.a.
Wishon Beach Boat Launch	2 boat ramps	No	Flush	Yes	250/150
TOTAL	276	—	—		—

\*People at one time; n.a. = not available

Sources: National Recreation Reservation Service, pers. comm.; Pacific Gas & Electric Company, 1986a; Schreiber, pers. comm.; USDA, Forest Service, 1989; and United States Geological Survey, 1993.

On the northeast side is the Falls Picnic Area and Falls Beach. Falls Beach provides direct access to one of the lake's swimming zones. No watercraft are allowed on the water surface or the beach area of the swimming zone. Top-of-the-car boats can be launched from the picnic facility area.

Also on the northeast side is Willow Cove, which is designated as a picnic area, but is undeveloped. Willow Cove does not provide picnic tables, piped water, or toilets; however, the site has shoreline access to the lake and is regularly used for swimming and top-of-car boat launching. There is a minor user-defined trail which leads from Country Road 222 to the cove's shoreline.

The Wishon Beach Boat Launch, on the southwest shore near the dam, is the only public boat launching facility on the lake. There is a floating wooden dock with a free boat ramp on each side. The site provides parking (for a fee) for boat and trailer tows. This facility also accommodates fishing, waterskiing, and swimming. The Wishon Beach Boat Launch is located at the deep end of the lake and its shoreline is relatively steep; therefore, boat launching functions are not affected by lake lowering. It can launch watercraft when the lake is at 60 percent and 50 percent capacity. The public launch is open and accessible all year.

*Bass Lake Resorts and Other Service Providers.* Various accommodations and services are available at Bass Lake, including bed and breakfast facilities, resort facilities, lodges, rental cabins, a conference center, boating and fishing equipment rental businesses, restaurants, coffee shops, grocery stores, and other shops frequented by visitors. Although most of the businesses at Bass Lake are affected to some extent by conditions at Bass Lake, many businesses directly rely on lake conditions to support their operations. For example, Bass Lake Boat Rentals & Water Sports, on the northeastern side of the lake, rents watercrafts and fishing supplies, and offers watersport instruction (Bass Lake Boat Rentals and Water Sports, 2000). Ducey's On the Lake, which is adjacent to the Pines Marina on the northeastern side of the lake, provides a dock with 60 boat slips and shares a common boat launch with the Pines Marina. The boat launch, which is the only launch on the northeastern side of the lake, is made of concrete and is approximately 290 feet in length from the highwater mark to the bottom.

In addition to the boat launch which it shares with Ducey's On the Lake, the Pines Marina also provides beach access to one of the lake's swimming zones, a standing and floating dock, and a gasoline pump. The marina offers 80 boat slips and has a waiting list for seasonal boat slips. The Pines Resort, which owns Pines Marina and Ducey's On The Lake, operates Bass Lake Queen II Boat Tours from the Pines Marina. The Bass Lake Queen II is a paddleboat with seating for 50 and a full capacity of 60 passengers. The Queen II generally operates from the end of May through the first weekend of September; however, when the lake is drawn down fifteen feet or more, no docks with sufficient lake depth are available to accommodate the Queen II, limiting operation of the boat during some periods of the off-season (Pines Resort and Conference Center, 2000).

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Bass Lake Lodge, also on the northeast side of the lake, provides a boat dock and private beach for use by their guests. The Forks Resort, on the southeast side of the lake, offers boat and trailer parking, and operates a marine dock with a gas pump. Boats and moorings are available to guests for rent, although the resort does not accept boats over 24 feet in length (Forks Resort, 2000). Miller's Landing Resort, which provides the largest marina on Bass Lake, rents boat slips, boat moorings, and watercrafts, and also gives instruction. The marina sells gasoline products, fishing poles, and snacks. Because Miller's Landing Resort is located at the deeper end of the lake near the dam, their marina does not lose functionality when the lake is drawn down (Miller's Landing, 2000).

*Relationship Between Lake Levels and Use of Facilities.* As indicated previously, drawdown of Bass Lake decreases the functionality of recreational facilities. The areas most impacted by low lake levels are the shallow north end of the lake and the developed northwestern shoreline area. Annual drawdown levels decrease operational capacity of residential and commercial facilities.

Table 4.6-24 shows Bass Lake's historical annual surface elevations above mean sea level (msl).

**Table 4.6-24 Bass Lake Historical Surface Elevations**

Month	Surface Elevation (feet)	Drawdown (vertical feet)
	Maximum = 3,376.4	0
January – March	3,353.4	23
April	3,359.4	17
May	3,370.4	6
June – July	3,376.4	0
August	3,370.4	6
August 15	3,365.4	11
September	3,362.4	14
October	3,359.4	17
Nov. – December	3,353.4	23

Source: Lake Level/Instream Flow Task Force, 1998.

As the table illustrates, lake level is usually at its maximum during June and July. Pacific Gas and Electric Company generally begins drawdown around July 15, at a rate of 2.9 inches per day (Pines Resort, 1989). The Miller-Lux Agreement requires that the lake level be at or below 60 percent capacity (down 17.4 vertical feet) by September 15, and at or below 50 percent capacity (down 22.5 vertical feet) by November 1. The lake begins refilling in April and May. Table 4.6-25 summarizes Bass Lake's water elevation, depth, volume, capacity, and vertical drawdown according to physical capacity and managing agreements.

**Table 4.6-25 Summary of Bass Lake Levels**

Bass Lake	Elevation (feet)	Depth from Bottom	Volume (acre-feet)	Percent	Vertical Drawdown (feet)
Maximum Lake Level	3,376.4	110.3	45,410	100%	0
Maximum storage Nov.1- April 1 (Div. of Safety of Dams)	3,365.6	99.5	33,540	73.9%	10.8
Maximum storage on Sep. 15 (Miller Lux)	3,359.0	92.9	27,246	60%	17.4
Maximum storage on Nov. 1 (Miller-Lux)	3,353.9	87.8	22,705	50%	22.5
Minimum Fisheries Goal	3,321.1	55.0	5,888	13%	55.3
Minimum Pool <sup>1</sup>	3,280.4	13.5	310	7.2%	96
Lake Bottom at its Lowest Point	3266.1	0	0	0%	110.3

<sup>1</sup> Lowest level which is possible due to existing facilities.

Source: 1937 Pacific Gas and Electric Company Tables of Capacities and Areas for Crane Valley Reservoir in Crane Valley License Committee 1997. (More-recent topographic surveys are not available.)

According to the Environmental Assessment for relicensing the Crane Valley license, when lake elevation is above 3,368 feet (approximately eight feet drawdown) almost all boat docks and slips on Bass Lake are operational. When drawdown exceeds eight feet, which typically begins in August, several boat docks and slips are unusable. By August 15 in a typical year, at the shallow end of the lake most residential boat docks are dry, beachshore at the Falls Beach is lost, and weeds and mud flats are exposed. At the Pines Resort marina, "for every six inches of drawdown, about four boat slips become unusable." (FERC, 1992)

When the lake reaches twelve vertical feet down (around 74 percent capacity), 40-50 percent of the boat docks in the Falls Tract and Pines Tract are inoperable (Pines Resort and Conference Center, 2000). At this level, almost all of the boat slips at the Pines Resort are unusable. By Labor Day weekend, when Bass Lake is at 60 percent capacity, or 17.4 feet down, boats cannot launch from the Ducey's On the Lake/Pines Resort shared marina. The Forks Resort moorings are not in operation after Labor Day weekend, although they do have dock access year round. When the lake nears 50 percent capacity (22.5 feet down), half of the lakefront businesses on Bass Lake are dried out.

In the years when FERC and Pacific Gas and Electric Company have granted a variance on the Miller-Lux Agreement, the lake has historically been drawn down only two feet until Labor Day. This difference is a "tremendous help" to local businesses since it allows them to operate their full facilities (Pines Resort and Conference Center, 2000).

Drawdown has an impact on the lake's aesthetics. Most detrimental visual impacts occur from thirteen to eighteen feet down. At thirteen feet drawdown, tree stumps and other lake bottom debris begin to emerge. In addition to the aesthetic impact, this debris affects boating safety.

According to a local business owner (Pines Resort and Conference Center, 2000), keeping the lake level at least five feet higher than its lowest level (i.e., 17.5 feet down instead of 22.5 feet, or the approximate difference between 60 percent and 50 percent capacity), the lake's aesthetics are improved by 100 percent.

Most business owners in the Pines Tract feel that lake drawdown levels in accordance with the Miller-Lux Agreement hurt their business. In general, Bass Lake business owners and homeowners would prefer that lake drawdown begin later and drain slower so that the lake level remains up at least through Labor Day weekend. Community members have proposed alternatives that range from leaving the lake at full capacity (elevation 3376.4 feet) throughout August and September, to drawing down only six feet (elevation 3370.4 feet), instead of the historical fourteen feet, through mid- to late September.

Residents have stated that one benefit of lake drawdown is that the resulting increased access to the lake bottom enables them to do dock repairs before winter season.

***Manzanita Lake.*** Manzanita Lake, also on the North Fork of Willow Creek, is located in Madera County, two miles north of the town of North Fork and approximately 40 miles north of Fresno. The lake is accessed by Madera County Route 222. The lake is at the fringe of the Sierra National Forest southwestern boundary but is located entirely on private property held by Pacific Gas and Electric Company. The lake is located at an elevation of 2,800 feet.

Manzanita Lake has two miles of shoreline and 26 surface acres of water (PG&E Co., 1986b). Directly upstream from it is San Joaquin 3 Forebay, with the lake serving as the afterbay for the San Joaquin 3 Powerhouse. Lake Manzanita water is conveyed via conduit to the San Joaquin 2 forebay.

The day use facility along Manzanita Lake's southwest shore is the only recreation facility provided by Pacific Gas and Electric Company within the Crane Valley license FERC boundaries. Accessible year-round, the facility provides lake fishing and includes ten picnic tables, sealed vault toilets, 22 parking spaces, signs, and trash cans. A Pacific Gas and Electric Company caretaker transports trash from the facility to the North Fork Transfer Station (PG&E Co., 1999a).

Fishing is the primary activity at the lake and use generally corresponds to trout fishing season (last Saturday in April to November 15). The lake is regularly stocked by the CDFG and "an excellent put-and-take fishery has developed" (PG&E Co., 1999a). (A "put-and-take" fishery refers to a stock-and-catch fishery in which a lake is stocked and fish are caught by anglers.) Only non-motorized boats are allowed on the lake.

The majority of users are local, primarily from the nearby vicinities of North Fork, South Fork, and Oakhurst (PG&E Co., 1986b). In 1984, recreation use of the lake totaled 8,500 visitor days (PG&E Co., 1986b). In 1996, estimated use totaled 14,400 visits (PG&E Co., 1999a).

***Corrine Lake.*** Corrine is approximately five miles south of Manzanita Lake, on the North Fork of Willow Creek. The lake is located in Madera County, approximately 35 miles northeast from Fresno and within five miles of the towns of North Fork, South Fork, and Auberry. The lake is accessed by USFS Road 8S48, which intersects with County Route 222. Corrine Lake is at approximately 1,000 feet in elevation, and is located on land administered by the Sierra National Forest. It is accessible year-round.

Corrine Lake, which was created from partial excavation of the top ridge above Wishon powerhouse, is shallow and small. It has seven surface acres of water and 0.6 miles of shoreline. The majority of the lake is within the boundaries of the A.G. Wishon Hydroelectric Generating Facility (PG&E Co., 1999b).

Corrine Lake is undeveloped as a recreation facility; however, anglers use the lake shoreline for trout fishing, and recreational use corresponds to trout fishing season (late April through mid-November). Pacific Gas and Electric Company provides portable toilets and trash cans to accommodate fishing recreation. In 1984, the lake registered 2,000 visitor days, mostly for fishing by local residents from the North Fork and Auberry vicinities. (PG&E Co., 1999b.)

***Other Reservoirs and Lakes.*** Other reservoirs and lakes within the Crane Valley Bundle include San Joaquin 3 Forebay, San Joaquin 2 Forebay, and Chilkoot Lake. No recreational facilities are located at the two forebays.

Chilkoot Lake is located approximately 65 miles northeast of Fresno and eight miles northeast of Bass Lake. The lake is accessible using Beasore Road, Country Road 434, and Country Road 8023. The lake is located in a remote region at an elevation of 7,497 feet. It is primarily fed by Chilkoot Lake Pick-up Ditch, which diverts water from Chiquito Creek.

Chilkoot Lake has 1.5 miles of shoreline and 57 surface acres of water. The lake is designed for a usable capacity of 308 acre-feet. Each year in late spring, Chilkoot Lake water is released to Chilkoot Creek. The water then flows into the North Fork of the Willow Creek and eventually into Bass Lake. By mid-summer the lake is dry (PG&E Co., 1999b).

No developed recreational facilities are available at Chilkot Lake. Recreation activiites are limited to some dispersed camping. The nearest public recreation facility is a USFS campground on Chilkoot Creek, approximately nine miles south of Chilkoot Lake.

***Rivers and Streams.*** For the Crane Valley license, the reach of the San Joaquin River between its confluence with North Fork Willow Creek and Kerckhoff Reservoir is the most important reach of the river for recreation. Other rivers that are part of the Crane Valley license system include Chilkoot Creek and North Fork Willow Creek between Chilkoot Lake and the confluence of North Fork Willow Creek with the San Joaquin River, and South Fork Willow Creek from the Browns Creek Diversion and the creek's confluence with North Fork Willow Creek.

***Upper San Joaquin River Below North Fork Willow Creek.*** There are no documented references regarding whitewater boating opportunities on Willow Creek. However, the North Fork of Willow Creek discharges into a boatable portion of the San Joaquin River, referred to by boaters as the “Horseshoe Bend Run”. This reach of the San Joaquin River also contains a significant warm-water fishery, which is one of two locations in the state that has an existing natural assemblage of fish (USFS, 2000v). Operation of the Crane Valley license facilities affects flows, and potentially whitewater boating and fishing opportunities, on this portion of the San Joaquin River.

The Horseshoe Bend Run is situated on the San Joaquin River between Redinger Reservoir (owned and operated by Southern California Edison) and Kerckhoff Reservoir (owned and operated by Pacific Gas and Electric Company). Whitewater rafters and kayakers put in the river just downstream of its confluence with North Fork Willow Creek and generally take out at two locations: a bridge near Southern California Edison’s Big Creek 4 Powerhouse about a mile upstream of Kerckhoff Reservoir, and at Smalley Cove at Kerckhoff Reservoir. (Facilities at Smalley Cove are described below for the Kerckhoff Bundle.) The run is about 8.3 miles long and the level of difficulty changes with flow. The run is considered Class III (with two class IV+ s) at flows ranging from 1,000 to 2,500 cfs, Class V- at flows ranging from 2,500 to 8,000 cfs, and Class V at flows exceeding 8,000 cfs. A flow of 1,500 cfs is considered optimum for intermediate to advanced boaters. Low boatable flows could be in the range of 500-750 cfs (Southern California Edison, 1997).

Flow in this portion of the San Joaquin River is mainly controlled by Southern California Edison, who owns and operates Redinger Reservoir as part of the Big Creek No. 4 license. However, some flow in this section is also dependent upon Pacific Gas and Electric Company’s operation of the Crane Valley license facilities. In fact, Willow Creek sometimes substantially influences flow in the San Joaquin River owing to the fact that SCE diverts the majority of flow out of the San Joaquin River. Hydrologic analyses indicate that on average, Willow Creek contributes from 5 to 70 percent of the water that is available in the Horseshoe Bend Reach of the San Joaquin River. Table 4.6-26 shows the percentage of flow contributed to the Horseshoe Bend reach of the San Joaquin River by Willow Creek.

**Table 4.6-26 Percentage of Flow Contributed to Horseshoe Bend Reach of the San Joaquin River by Willow Creek (Period of Record = 1953-1997)**

Avg	14	29	40	53	65	70	56	30	11	7	5	9
Max	75	94	97	99	99	95	98	89	64	41	21	61
Min	0	2	4	9	7	12	6	1	0	0	0	0

According to SCE, the historical daily exceedance flow data for water years 1972 to 1992 indicate that flows in the boatable range were available on the Horseshoe Bend Run between 20 and 40

percent of the time during the high boating season (between April and July). The data also indicate that during a wet year typed, such as water year 1982-1983, boatable flows were continually available from April to mid-September, ranging from 1,000 cfs to 12,500 cfs.

The Crane Valley license has been undergoing relicensing since 1984. A new license is not expected in the near future owing to disputes over mitigation measures and license conditions. In any event, the former license did not contain measures related to whitewater boating on Willow Creek or in the San Joaquin River and the new license is not expected to contain any either.

***Other Rivers and Streams.*** From its headwaters at Chilkoot Lake, Chilkoot Creek flows approximately 4.5 miles to its confluence with North Fork Willow Creek, and then flows approximately 3.5 miles to Bass Lake. The creeks are rocky and steep with several waterfalls, which make them unsafe for water-based recreation. Chilkoot Campground is located at the confluence of Chilkoot Creek and North Fork Willow Creek. A steep hiking trail, with its trailhead at The Falls at Bass Lake, travels adjacent to North Fork Willow Creek. The trail continues past Angel Falls and continues up to Devils Slide. Several deaths have resulted from visitors falling into the creek, and the Forest Service has posted warning signs discouraging visitors from entering the creek. (USFS, 2000v)

Between Bass Lake and the San Joaquin River, North Fork Willow Creek passes through the town of North Fork. A trailhead to the Forest Service's Cedars Interpretive Trail is located where the creek passes the Minarets District Ranger Office. Some fishing occurs along North Fork Willow Creek which is stocked by CDFG early in the fishing season.

South Fork Willow Creek between the Browns Creek Diversion and North Fork Willow Creek is accessed by Douglas Station Road, a dirt road. Some picnicking, and dispersed camping occur in the area, although no recreational facilities are available. Some angling also occurs in South Fork Willow Creek, although the creek is not stocked, and use is relatively light. Most of the users are local residents (USFS, 2000v).

***Watershed Lands.*** Most of the land owned by Pacific Gas and Electric Company within the Crane Valley license region is within FERC license boundaries. Relatively small portions of contiguous parcels lie outside of FERC boundaries near Bass Lake, San Joaquin No. 3 Powerhouse and Forebay, Manzanita Lake, and San Joaquin #2 Powerhouse and Forebay.

Use of lands near license facilities includes hiking from trailheads near Bass Lake, and dispersed use by residents of recreational homes near the lake.

***Trailheads.*** Bass Lake has a total of five trailheads, which lead to four different trails, two of them major and two minor. The trailheads are located on non-Pacific Gas and Electric Company lands outside of the FERC license boundary. A dirt road along North Fork Willow Creek is also used as an informal hiking trail.

Willow Creek Trail, a major trail on the northeast side of the lake, begins at the parking lot on Highroad 274 above The Falls. The trail travels northward along Willow Creek to Angels Falls and Devil's Slide. Beyond Devil's Slide, the trail splits with the left fork extending to McLeod Flat Road and the right fork ending at USFS Road 5S07M. The Willow Creek Trail is considered moderate, but it can be very dangerous when hikers go off the trail and climb on the wet, slippery rocks.

The Goat Mountain Trail offers a strenuous four-mile hike from its two trailheads along the southwestern side of Bass Lake. One trailhead is at Spring Cove Picnic Area and the other is at The Forks Picnic Area. Both areas offer parking. The trails meet at a junction 2-2.5 miles from their respective trailhead. The single trail then travels approximately two miles more and summits at Goat Mountain Lookout, an old, unmanned Forest Service fire lookout tower.

The trailhead for the Way of the Mono Trail is on Road 222, near Recreation Point campground and Denver Church day use area. This is a winding 0.5-mile Forest Service interpretive trail loop.

Another minor, user-defined trail begins approximately two blocks up the hill behind Pines Village and travels eastward on Forest Service land for approximately 0.25 miles before forking into two trails. One fork continues east, the other fork turns northward and curves eastward. Both forks connect to a north-south trail which descends to Willow Cove's lakeshore area.

A dirt road along North Fork Willow Creek south of Bass Lake, which passes through private land and Forest Service land, is used by local residents as a trail. Gates limit vehicular access to this road, which is approximately two miles long, but people are able to cross over the gates to access the road. (USFS, 2000v)

***Recreation Residences.*** A number of residential tracts are located near Bass Lake on private and public lands outside of the FERC license boundary. Major residential tracts include Pines Tract on the northeastern side of the lake (550 private residences), Lakeshore Park Tract on the northeastern side of the lake (38 residences), and Marina View Heights Tract also on the northeastern side of the lake (58 residences). A number of other smaller tracts, such as Angel Springs Tract, Wishon Cove Tract, Chepo Tract, and Hosea Clark Tract, include recreational cabins. Although residential occupancy around Bass Lake is increasingly becoming year-round, many of the residences are second homes, which owners lease as vacation rentals, usually by the week.

A number of residential tracts offer boating facilities. For example, the main road from Lake Park Tract connects to a private boat ramp, which is operational all year (USGS, 1993). Marina View Heights Tract also offers a private year-round boat ramp.

**Bundle 17: Kerckhoff*****Kerckhoff (FERC 0096)***

Pacific Gas and Electric Company's Kerckhoff license is located on the San Joaquin River, about 4 miles west of Auberry. The license facilities include a reservoir referred to as Kerckhoff Reservoir, two powerhouses referred to as Kerckhoff No. 1 and Kerckhoff No. 2, and appurtenant facilities. Kerckhoff Reservoir serves as the forebay for both Kerckhoff No. 1 and No. 2 powerhouses and has a usable storage capacity of approximately 4,252 af. The intake structures for both powerhouses are situated on the south side of the reservoir; two tunnels convey water from the intake structures to the Kerckhoff No.1 and No. 2 Powerhouses. Kerckhoff No. 1 Powerhouse has a total flow capacity of 1,735 cfs; Kerckhoff No. 2 Powerhouse has a total flow capacity of 5,100 cfs. After generating power, water is released back into the San Joaquin River, near the upper end of Millerton Reservoir.

Operation of both Kerckhoff No. 1 and Kerckhoff No. 2 is highly dependent upon releases from Southern California Edison's Big Creek System located upstream. In fact, Pacific Gas and Electric Company added Kerckhoff No. 2 to the license in 1983, mainly to capitalize on the high flows released to the San Joaquin River by SCE. Pacific Gas and Electric Company typically operates the license to maximize operations at Kerckhoff No. 2. Kerckhoff No. 1 is brought on line when flows in the San Joaquin exceed the 5,100 cfs capacity of Kerckhoff No. 2. During high flow periods as much as 6,835 cfs may be diverted from the San Joaquin River through the Kerckhoff No. 1 and No. 2 powerhouses.

***Reservoirs.*** Kerckhoff Reservoir, with approximately seven miles of shoreline and 160 surface acres within its flooded area, is the only reservoir included in the Kerckhoff license. Located at an elevation of approximately 1,000 feet, this relatively small foothill reservoir is approximately 30 miles northeast of Fresno. The reservoir is accessible from Powerhouse Road, which is reached using State Route 168 and Auberry Road. The length of the recreation season at Kerckhoff Reservoir is approximately 300 days (FERC, 1983), although use is heaviest in April and May, with lighter use (primarily day use) between June and September, when warm temperatures force recreationists to higher-elevation lakes (PG&E Co., 1999a).

Pacific Gas and Electric Company operates developed recreational facilities on the north shore of Kerckhoff Reservoir on its property at the Smalley Cove Recreation Area. Facilities include five picnic tables in a day-use area and five camping units in a campground operated by Pacific Gas and Electric Company. Each of the day-use and camping units have a picnic table and fire ring. A group day-use area has a parking area, picnic tables, a large cooking grill, potable water, trash containers, and a small ball field. The facilities meet the requirements of the Americans with Disabilities Act (FERC 1997). The area is used for picnicking, fishing, swimming, jet skiing, and boating, with a platform for launching lightweight car-top boats available at Smalley Cove. The

camping and picnicking facilities are located above the reservoir’s high-water elevation (USFS, 2000t).

Kerckhoff Reservoir is relatively shallow. During summer months, low water levels (i.e., an estimated four feet below average water levels) in the afternoon often make the lake unsafe for jet skiers and boaters by exposing islands and debris. The aesthetics of the lake are also significantly diminished when water levels fall, exposing a long, muddy shoreline. (USFS, 2000t)

According to a popular California fishing guide (Stienstra, 1995), no trout or largemouth bass are available to anglers at Kerckhoff Reservoir, although striped bass, which are caught primarily from boats, are available. In addition to small numbers of striped bass, fish species found in Kerckhoff Reservoir include sucker, hardhead, squawfish, sculping, and stickleback (FERC, 1997). The quality of the fishery is changeable because of quickly fluctuating water levels and extreme heat during summer months.

High summer temperatures and poor fishing at Kerckhoff Reservoir keep public-use levels of Kerckhoff facilities low (FERC, 1997). According to Pacific Gas and Electric Company (PG&E Co., 1999b) use data, recreational use of developed facilities at Smalley Cove totaled 283 visits in 1996, including 16 visits associated with the Smalley Cove Campground and 267 visits to the Smalley Cove Day-Use Area (see Table 4.6-27).

**Table 4.6-27 Recreation Use of Kerckhoff Bundle Facilities in 1996**

License/Location/Name	Primary Facilities	Visits
Kerckhoff Reservoir:		
Smalley Cove Campground	5 camping units	16
Smalley Cove Day-Use Area	5 picnic tables	267
Dispersed use access areas	N/A	538
Total visits – Kerckhoff Bundle	N/A	821

N/A = not applicable.

Source: PG&E Co., 1999b.

**Downstream Rivers.** Between Kerckhoff Reservoir and Millerton Lake, the San Joaquin River runs through a steep-walled gorge west of the boundary of the Sierra National Forest. Downstream from Kerckhoff Dam, the river takes a long, semi-circular north-south bend through primarily private land. No road access is available to this reach of the river, known as Patterson Bend. Use of this reach, which is not documented, is likely limited to fishing by anglers and by rafters and kayakers, who put in below Kerckhoff Dam (USFS, 2000t).

The Patterson Bend reach of the San Joaquin River is considered boatable. According to information contained in a published whitewater guidebook, the Best Whitewater in California (Holbeck and Stanley, 1998), the Patterson Bend Run is boatable at flows ranging from about 1,500 to 5,000 cfs, with optimum flows being around 4,000 cfs. It is rated Class V on the International

Scale of Difficulty, meaning that the run should only be boated by advanced and/or expert boaters. Holbeck and Stanley indicate that there is rarely enough water in the river to boat the Patterson Bend Run, owing to the large diversion of water into the Kerckhoff No. 2 license. Typically, the Patterson Bend Run can only be boated when excess water is available, which only occurs during the peak of a high water year. The FERC license for the Kerckhoff license does not contain provisions regarding whitewater boating. The current license for the Kerckhoff license expires in November 30, 2022. Therefore, it is unlikely that any provisions for whitewater boating will be incorporated into the license in the near future.

Below Patterson Bend, the San Joaquin River winds through areas of public and private lands until it flows into the upper arm of Millerton Lake. Vehicle access to this reach of the river is limited to the road providing access to BLM's Squaw Leap Management Area and Pacific Gas and Electric Company's Kerckhoff 1 Powerhouse. Pacific Gas and Electric Company has constructed a parking area near the Squaw Leap-Kerckhoff Reservoir trailhead in the BLM's Squaw Leap Management Area near the Kerckhoff 2 Powerhouse. This lot provides access to the San Joaquin River upstream of Millerton Lake for anglers and hunters (PG&E Co., 1999a). A 10-mile loop trail is located north of the Squaw Leap Management Area on the Madera County side of the San Joaquin River. BLM also operates a seven-unit campground and a group campground, with a capacity of 10 persons, within its management area. Dispersed recreation use, including hiking, fishing, and hunting, originates from the BLM campground and Pacific Gas and Electric Company's nearby parking lot.

According to Stienstra (Stienstra, 1995), fishing quality along the reach of the San Joaquin River between Kerckhoff Reservoir and Millerton Lake is not high due to lack of access and overfishing near the few access points near campgrounds. River flows are also subject to dramatic changes, even during the summer, because of unpredictable releases from dams at Kerckhoff Reservoir, Redinger Lake, and Mammoth Pool Reservoir.

***FERC-Licensed Areas and Watershed Lands.*** Lands within the FERC license boundary for the Kerckhoff license total approximately 480 acres, including properties around the powerhouse, switchyard, and penstocks (9 acres); properties around the tunnel and support roads (95 acres), and properties around Kerckhoff Reservoir (376 acres). Ownership of properties within the FERC license boundary is divided among the Sierra National Forest, BLM, Pacific Gas and Electric Company, and other private property owners (PG&E Co., 1999b). Pacific Gas and Electric Company's property subject to transfer includes 240 acres along the northern shore of Kerckhoff Reservoir, including 167 acres within the FERC license boundary (including 40 acres within the water area) and 73 acres of Watershed Lands. The campground and day use areas at Smalley Cove are located on Pacific Gas and Electric Company lands within the FERC license boundary. No other developed recreational facilities are located on Pacific Gas and Electric Company lands within or outside of the FERC license boundaries.

Terrain in the Kerckhoff license area, which is typically rugged, consists of plateau-like uplands, scattered hills and knobs, and deep V-shaped canyons (FERC, 1997). Recreational use of license lands and adjacent national forest and BLM lands is reportedly light, with dispersed use generating approximately 540 visits during 1996. This use originates from access points provided by the road and public-use area at Kerckhoff Reservoir and by the parking area at the Squaw Leap-Kerckhoff Reservoir trailhead.

### **Bundle 18: Kings River**

The Kings River Bundle includes three FERC-licensed areas: the Helms Pumped Storage Facility, the Haas-Kings license, and the Balch license. The three licenses are located within the Kings River Basin, on the North Fork Kings River (NFKR) and the main stem of the Kings River. The NFKR joins the main stem Kings River just north of Pine Flat Reservoir. Combined, the licenses include four dams that impound water in Courtright Reservoir, Wishon Reservoir, Black Rock Reservoir, and the Balch Afterbay. All of these reservoirs are located along the NFKR. The Helms pump storage facility is located about 1,000 feet underground, between Wishon and Courtright Reservoirs. The Haas powerhouse is located on the NFKR upstream of Black Rock Reservoir, the Balch Powerhouses are located just above the Balch Afterbay, and the Kings River powerhouse is located at river mile 114 on the main stem of the Kings River. Water from the Kings River powerhouse is discharged to Pine Flat Reservoir.

Based on a recreational use survey conducted by Pacific Gas and Electric Company and the USFS of facilities associated with the Kings River Bundle during the 1984-85 recreation seasons (PG&E Co., 1986d), the following conclusion regarding recreational use of license facilities were drawn.

Existing recreational facilities at Courtright Lake, Lake Wishon, and Black Rock Reservoir are being used at levels well under design capacity. Of the six campgrounds surveyed, average use during the 1984-85 recreation seasons ranged from 13 percent at Black Rock Campground to 35 percent at Trapper Springs Campground at Courtright Reservoir.

Recreationists participated in activities as follows: relaxing, 24 percent; hiking, 19 percent; fishing, 22 percent; picnicking, 8 percent; boating, 6 percent, hunting, 4 percent; and other, 11 percent.

The majority of recreationists (63 percent) came from the Fresno area. Almost 30 percent of visitors came from southern California.

Approximately 91 percent of all users stayed in the area one or more nights.

### ***Helms Pumped Storage (FERC 2735)***

***Reservoirs.*** Two reservoirs are included in the Helms Pumped Storage license: Courtright Reservoir and Lake Wishon. These reservoirs were originally created as part of the Haas-Kings

River license and are still part of that license, but Article 46 of the Helms Pumped Storage license FERC license allows the reservoirs to be used in the operation of both licenses. The recreational facilities provided by Pacific Gas and Electric Company at the reservoirs were required by the license for the Helms Pumped Storage license and are not included in the Haas-Kings River license (FERC, 1998b).

***Courtright Reservoir.*** Courtright Reservoir, located at an elevation of approximately 8,200 feet, covers a surface area of 1,632 acres when flooded. Access to the lake, which is reached from Fresno by a series of roads, is provided by Courtright Road, which ends at the reservoir. Driving time from Fresno is two to three hours. Access to Courtright Reservoir is usually closed during the winter (i.e., November to May) due to severe snow conditions, although the area gets a limited amount of use by snowmobilers.

Article 44 of the FERC license for the Helms Pumped Storage license requires Pacific Gas and Electric Company to maintain Courtright Reservoir's water surface level as high as possible on weekends during the recreation season, which generally runs from May through September. A recent review of operational records for Courtright Reservoir indicates that water surface elevations generally do not fluctuate widely, although the water surface elevation declines throughout the summer. (FERC, 1998b) Anecdotal information indicates that the surface elevation of the reservoir can drop quickly from mid-August through fall (Stienstra, 1995). The FERC license currently allows for a 164-foot fluctuation in water surface elevation at Courtright Lake (PG&E Co., 1999a).

According to FERC (FERC, 1998b), Pacific Gas and Electric Company provides the following recreational facilities, all located on forest service land, at Courtright Reservoir:

1. *Trapper Springs Campground.* The Trapper Springs Campground is near the end of Courtright Road, located away from the west side of the reservoir. The campground includes 70 units, each with a paved parking spur, picnic table, and fire grill or pit. Potable water, sanitary facilities, and a concrete trail are provided.
2. *Marmot Rock Campground.* The Marmot Rock Campground is located near the south shore of the reservoir. The campground offers 15 walk-in units, with paved parking, a picnic table, and a fire ring. Sanitary facilities are provided.
3. *Courtright Boat Launching Ramp.* This facility, located at the southern end of the lake, is a two-lane concrete boat ramp and parking area, with a courtesy dock. A gravel area near the parking lot is available for overflow parking.
4. *Wee-Mee-Kute Fishing Access.* This day-use area along the west side of the reservoir provides angler access, with paved parking for 20 vehicles, 15 picnic tables, and sanitary facilities.

In addition to license facilities, a private development with summer homes is located along the mountain slopes on the western side of the reservoir. This development, known as Courtright Lake Village, comprises 88 lots on 35 acres for summer homes. Cabins have been built on many of

these lots. USFS Service trail 26E09.4 (Cliff Lake Trailhead), which provides access to the Dinky Lakes Wilderness, begins from the road at the entrance to this subdivision. On the northeastern side of Courtright Reservoir, approximately three miles north of Courtright Dam, the USFS operates 14-unit Voyager Rocks Campground. This semi-primitive campground is accessible only to hikers, boaters, or drivers of off-road vehicles with Dusy Off-Road Vehicle Trail. (PG&E Co., 1973 and 1986d)

Fishing quality at Courtright Reservoir is considered to be good. The CDFG regularly stocks Courtright Reservoir with rainbow trout, and cool waters throughout most of the summer and calm surfaces, guaranteed by the 15 mile-per-hour boating speed limit, provide for a good lake-fishing environment (Stienstra, 1995).

Use of the reservoir and adjacent lands for camping, picnicking, boating, swimming, and fishing is concentrated along its southern and western shores, where access is provided by Courtright Road. Road access to the reservoir's eastern shore is limited to the Dusy Off-Road Vehicle Trail, which provides access to Voyager Rocks Campground. Additionally, the USFS provides a trailhead at the end of Maxson Dome Road at the southeast end of the lake for access to the John Muir Wilderness.

Recreational facilities at Courtright Reservoir have largely been unaffected by fluctuations in lake levels, although the aesthetic quality of the lake is diminished by exposed banks under low-water conditions. The surface water elevations of the reservoir are usually kept high, and low water levels have created few problems with recreational facilities in the past. All campgrounds, including the Forest Service's Voyager Campground (described below), are located well up from the lake. Similarly, the Wee-Mee-Kute Fishing Access area is also located safely above the lake's high-water level. Usability of the Courtright Boat Launching Ramp, which is relatively steep, is generally immune to fluctuations in lake water surface elevations (USFS, 2000t).

Based on a recreational use survey conducted by Pacific Gas and Electric Company and the USFS during the 1984-85 recreation seasons, use of Trapper Springs Campground, Marmot Rock Campground, and the Courtright Boat Launch Parking Area totaled 10,360 visitor-days, well below the capacity of these facilities. Use of the USFS's Voyager Rock Campground totaled 590 visitor-days, while use of the two trailheads at the lake totaled 8,170 visitor-days. Boating use of the lake is relatively light. During the 1985 recreation survey, the peak number of boats observed on the reservoir at one time was five. Boats speeds on the reservoir are limited to 15 miles-per-hour. (PG&E Co., 1986d).

As Table 4.6-28 shows, use of developed facilities at Courtright Reservoir totaled 16,457 visits in 1996, including approximately 9,300 visits associated with the lake's two campgrounds and 7,100 visits related to use of the boat ramp and day use facilities. According to Pacific Gas and Electric Company's recreation use plan for Courtright Lake (PG&E Co., 1973), facilities at the reservoir have a capacity of 550 PAOT, excluding trailhead users and persons accommodated by facilities at Courtright Lake Village.

**Table 4.6-28 Recreation Use of Kings River Bundle Facilities in 1996**

License/Location/Name	Primary Facilities	Visits
Helms Pumped Storage License		
Courtright Reservoir:		
Trapper Springs Campground		6,136
Marmot Rock Campground	70 camping units	3,176
Wee-Mute-Kute Day-Use Area	15 walk-in camping units	2,900
Courtright Boat Launching Ramp	15 picnic tables	4,245
Subtotal	Boat ramp and dock	16,457
Lake Wishon:		
Lily Pad Campground		2,656
Wishon Quarry Boat Ramp and Picnic Area	15 camping units	8,676
Helms Picnic Area	Boat ramp, dock, 10 picnic tables	2,661
Short Hair Creek Fishing Access	10 picnic tables	2,863
Coolidge Meadow Fishing Access	Parking area for fishing access	2,717
Spillway Fishing Access	Parking area for fishing access	1,354
Wishon Dam Fishing Access	Parking area for fishing access	372
Subtotal	Parking area for fishing access	21,299
North Fork Kings River:		
Upper Kings River Group Campground		2,950
Upper Kings River Fishing Access	Group camping for 50 persons	2,044
Subtotal	Parking area, 3 picnic tables	4,994
Dispersed use areas		2,698
Total visits – all facilities	N/A	45,448
Balch License		
Black Rock Reservoir:		
Black Rock Campground		364
Williams Creek Fishing Access	10 camping units	222
Subtotal	Fishing access area	586
Dispersed use areas		1,062
Total visits – all facilities	N/A	1,648
Total visits – Kings River Bundle	N/A	47,096

N/A = not applicable.

Source: PG&amp;E Co., 1999b.

***Lake Wishon.*** Lake Wishon is located approximately 10 miles south of Courtright Reservoir. At an elevation of approximately 6,550 feet, Lake Wishon covers a surface area of 1,025 acres when flooded and has nine miles of shoreline. Access to the lake is provided by McKinley Grove Road, which is reached from Fresno by the same series of roads used to ultimately reach Courtright Road and Courtright Reservoir. Driving time from Fresno is approximately two to two-and-one half

hours. Similar to Courtright Reservoir, access to Lake Wishon is usually limited during the winter (i.e., November to May) due to snow conditions.

The FERC license for the Helms Pumped Storage license currently allows for a 110-foot fluctuation in water surface elevation at Lake Wishon (PG&E Co., 1999a).

According to FERC (FERC, 1998), Pacific Gas and Electric Company provides the following recreational facilities at Lake Wishon:

1. *Lily Pad Campground.* This campground, which offers 15 units (including four hike-in units), is located along the southwestern shore of the lake between the access road to Wishon Dam and the reservoir shoreline. Each camping unit includes a paved parking spur, a picnic table, and a fire ring. Potable water and sanitary facilities are also available at the campground.
2. *Wishon Quarry Boat Ramp and Picnic Area.* This facility, located on the west shore of the lake, includes a two-lane concrete boat ramp with a courtesy dock, 50 paved parking spaces, a day-use area with 10 picnic tables and fire rings, and sanitary facilities. A private marina adjacent to the courtesy dock is operated by a concessionaire under an agreement with Pacific Gas and Electric Company. The marina provides rental boats and moorage space.
3. *Helms Picnic Area.* The Helms Picnic Area is situated along the lake's west shore north of the Wishon Quarry Picnic Area. Facilities available at the Helms Picnic Area include paved parking, 10 picnic tables, and sanitary facilities.
4. *Short Hair Creek Fishing Access.* This facility, which provides paved and sanitary facilities, is located along the northwestern shore of lake near where Short Hair Creek enters Lake Wishon.
5. *Coolidge Meadow Fishing Access.* Located at the southeast corner of Lake Wishon, the Coolidge Meadow Fishing Access provides paved parking and sanitary facilities.
6. *Spillway Fishing Access.* The Spillway Fishing Access is located at the east end of Wishon Dam, and offers paved parking and sanitary facilities.
7. *Wishon Dam Fishing Access.* A paved parking area and sanitary facilities are provided at the Wishon Dam Fishing Access, which is situated at the west end of Wishon Dam. Pacific Gas and Electric Company also allows the public to fish from the Wishon Dam access road.

In addition to these facilities, Wishon Village resort, a privately owned recreation development approximately one-half mile southwest of Lake Wishon on McKinley Grove Road, provides a recreational facility consisting of 95 RV sites and 26 tent sites. Wishon Village resort operates on USFS land under a permit with the USFS. The resort also operates a boat dock and the adjacent Wishon Quarry Boat Ramp under a permit with Pacific Gas and Electric Company. The permit agreement has no expiration date, and Pacific Gas and Electric Company proposes to transfer this agreement to a new owner of the Helms Pumped Storage license. Boats and boat motors are rented from the Wishon Village dock, which fluctuates with the lake level. The campground is usually open from May to November, with most of its use occurring between July 4<sup>th</sup> and Labor Day. The resort also includes a general store, café, and bar (Wishon Village, Inc., 2000).

The vicinity of Lake Wishon is a popular staging area for trips into the John Muir Wilderness, the boundary of which is approximately one-quarter mile east of the lake. Woodchuck Trailhead, located one mile east of Wishon Dam, provides access to this wilderness.

Use of the lake is concentrated along its southern and western shores, where access is provided by McKinley Grove Road. No public road access is available to the lake's northern and eastern shores. Based on a recreational use survey conducted by Pacific Gas and Electric Company and the USFS during the 1984-85 recreation seasons, use of Lily Pad Campground, the Wishon Quarry Day Use Area, and the fishing access areas maintained by Pacific Gas and Electric Company at Lake Wishon totaled 6,300 visitor-days, well below the capacity of these facilities. Use of the USFS's Woodchuck Trailhead totaled 2,090 visitor-days, and use of private Wishon Village facilities totaled 28,950 visitor-days. Boating use of the lake is relatively light. During the 1985 recreation survey, the peak number of boats observed on the lake at one time was four. Boats speeds on the reservoir are limited to 15 miles-per-hour (PG&E Co., 1986d).

Fishing is the most-popular water-oriented activity at Lake Wishon, focused on catches of rainbow, brook, and brown trout. The CDFG regularly stocks Lake Wishon with rainbow trout. Fishing is generally considered to be good at the lake; however, frequent fluctuations in water levels have reportedly hurt trolling for trout (Stienstra, 1995).

With the exception of the Wishon Quarry Boat Ramp and the Short Hair Creek Fishing Access area, the usability of recreational facilities at Lake Wishon has been largely unaffected by fluctuations in lake levels, although the aesthetic quality of the lake is diminished when low water levels create an exposed shoreline. The Wishon Quarry Boat Ramp is usually not operational prior to June because of low water levels, but is usually operational from early June through October (Wishon Village, Inc., 2000). When the Wishon Quarry Boat Ramp is not operational due to low water levels, boat launching is available from a rough gravel road near Wishon Dam. (This informal ramp was used by boaters prior to Pacific Gas and Electric Company constructing the Wishon Quarry Boat Ramp as part of the Helms Pumped Storage license.) During some years, boat launching activity migrates from the Wishon Quarry Boat Ramp to the gravel ramp near the dam as the recreation season progresses and the lake level declines. Many boaters, however, do not like using the Wishon Village boat ramp because the access road is unpaved, rocky, and steep, and some boaters worry about damaging their boats and vehicles (Wishon Village, Inc., 2000). Low lake levels also diminish the use of the Short Hair Creek Fishing Access area because angler access to the lake is discouraged by the steep slope of the lake's bank when the shoreline is exposed (USFS, 2000t).

As Table 4.6-29 shows, use of developed facilities at Lake Wishon totaled 21,299 visits in 1996, including approximately 2,700 visits associated with Lily Pad Campground, 11,300 visits related to use of the boat ramp and the Helms Picnic Area, and 7,300 visits associated with fishing access facilities. The use capacity of Lake Wishon's facilities is 675 PAOT, excluding facilities at Wishon Village (PG&E Co., 1983) (Wishon Village has an estimated capacity of 605 PAOT).

***Downstream Rivers.*** Downstream rivers potentially affected by divestiture-related changes in operation of the Helms Pumped Storage license include Helms Creek and North Fork Kings River between Courtright Reservoir and Lake Wishon, and the North Fork Kings River between Lake Wishon and Black Rock Reservoir.

South of Courtright Reservoir, Helms Creek runs through a steep canyon, and access to the creek is difficult, except for the area directly downstream of Courtright Dam. Limited fishing occurs along this reach of the creek, which flows through approximately 2.6 miles of the Sierra National Forest before joining the North Fork Kings River directly above Lake Wishon. Anglers hike from Courtright Road or from the Courtright Dam area to fish along Helms Creek and the North Fork Kings River. No developed recreational facilities are located along this reach of Helms Creek and the North Fork Kings River.

Most of the recreation-related use of the North Fork Kings River between Lake Wishon and Black Rock Reservoir occurs immediately below Wishon Dam, where Pacific Gas and Electric Company recreational facilities are located. Further downstream, the area along the North Fork Kings River is remote, very rugged, and steep, and is accessible only by foot. Use of this reach is limited to occasional hikers and anglers, with foot access to the river available from the rugged trail to Cliff Bridge (USFS, 2000t). No developed recreational facilities are located along this reach of the North Fork Kings River, with the exception of the Pacific Gas and Electric Company facilities.

Two Pacific Gas and Electric Company license recreational facilities are located on the reach of the North Fork Kings River immediately south of Lake Wishon. The Upper Kings River Group Campground is located immediately downstream of Wishon Dam at the southern end of Lake Wishon. This campground, which has a capacity of 50 persons, includes five pods of five tent pads each. Facilities include a large communal food preparation area and pantry, a dining area with 10 picnic tables, elevated grills, lantern stands throughout the grounds, an amphitheater, and a sandy area for sports activities. Potable water and sanitary facilities are also provided (FERC, 1998a). Use of this facility totaled 2,950 visits in 1996 (see Table 4.6-28).

Angler access to the North Fork Kings River is provided by Pacific Gas and Electric Company at the Upper Kings River Fishing Access, a paved parking area with three picnic tables and sanitary facilities, located off a dirt road at the base of Wishon Dam. A limited amount of fishing occurs downstream of the dam. Capacity of this facility is 30 PAOT (PG&E Co., 1983). Use of the access area totaled 2,044 visits in 1996 (see Table 4.6-28).

Use of Pacific Gas and Electric Company's group campground and the fishing access area on the North Fork Kings River totaled 4,994 visits in 1996 (see Table 4.6-28).

Releases from Lake Wishon into the NF Kings River have occasionally limited access to the group campground and the fishing access area. High releases from the lake have flooded the access road to the campground and fishing access area two or three times over the past 10 years, resulting in

the closure of the group campground for a week or two each time. Each of these closures reportedly occurred in June. (USFS, 2000t) A review of streamflow data for the reach of the NF Kings River below Lake Wishon over the 1987-97 water years indicates that periods of high flows (i.e., flows of 25 cfs or greater) have occurred twice over that period, including average daily flows between 27 and 30 cfs during virtually all of June, 1987, and flows of approximately 25 cfs from June 30 to August 10, 1993.

***FERC-Licensed Areas and Watershed Lands.*** Land within the FERC license boundary for the Helms Pumped Storage license totals approximately 4,870 acres, including properties around Courtright Reservoir and Lake Wishon (3,594 acres); properties along roads and tunnels, and around the powerhouse and switchyard (118 acres); areas around housing, support facility, and 21 kv pole line (60 acres); an area within a wildlife habitat management area west of Lake Wishon (80 acres); and properties along transmission lines (1,014 acres). Ownership of property within the FERC license boundary is divided between Pacific Gas and Electric Company and the Sierra National Forest (PG&E Co., 1999b). Pacific Gas and Electric Company's property subject to transfer includes 440 acres adjacent to Lake Wishon and within the wildlife habitat management area. Of this total, 301 acres are located within the FERC license boundary (including 64 acres within water areas) and 139 acres are located outside of the boundary.

All recreational facilities at Courtright Reservoir are located on Sierra National Forest lands. Similarly, the PEA (PG&E Co., 1999a) states that all Pacific Gas and Electric Company recreational facilities at Lake Wishon are located on Sierra National Forest lands. National forest maps, however, indicate that the Short Hair Creek Fishing Access, the Helms Picnic Area, the Wishon Quarry Boat Ramp and Picnic Area, and Lily Pad Campground are all located on land owned by Pacific Gas and Electric Company. Trailheads located near both reservoirs are located on Sierra National Forest lands.

Recreational facilities on lands within and outside the Helms Pumped Storage license FERC boundaries have been previously described, including Pacific Gas and Electric Company facilities, USFS trailhead and campground facilities, and private Wishon Village facilities. In addition to recreation associated with these facilities, dispersed uses, including hiking, hunting, and fishing, occur on national forest and wilderness lands adjacent to license facilities. For example, fishing occurs near Lake Wishon along the drainages of Short Hair Creek, Helms Creek, Woodchuck Creek, and the North Fork Kings River (north of the lake). Access to the latter three fishing sites is by boat or hiking trail. Additionally, Woodchuck Trailhead, located at the southeast corner of Lake Wishon provides trail access south to Cliff Camp on the North Fork Kings River, about one mile south of Wishon Dam.

According to Pacific Gas and Electric Company, dispersed uses associated with the Helms Pumped Storage license totaled 2,698 visits in 1996 (Table 4.6-28).

### ***Haas-Kings River (FERC 1988)***

The Haas-Kings River license is currently in the process of relicensing, with the application pending before FERC. The Forest Service has proposed the following summarized terms and conditions provided under Section 4(e) of the Federal Power Act for inclusion in the new license (USFS, 1997):

1. Pacific Gas and Electric Company shall conduct a recreational survey and prepare a report on recreational resources once every 10 years, beginning in October 2002.
2. Pacific Gas and Electric Company shall develop the Courtright Geological Interpretive Display and the Le Conte Divide Interpretive Center. Pacific Gas and Electric Company shall also develop the Wishon Visitor Information Service at the Helms Picnic area, Wishon Dam accessible fishing platforms, Wishon and Courtright Reservoir accessible boat loading ramps for persons with disabilities, and reestablish the Black Rock fishing access trail. During the time of the year that the surface elevation of Wishon Reservoir is below the end of the main boat ramp, Pacific Gas and Electric Company shall install a sign to direct boaters to the alternative boat launch facility that is maintained by Pacific Gas and Electric Company.
3. Pacific Gas and Electric Company shall monitor Voyager Rock Campground to determine the types and numbers of users during the first recreation season after license acceptance. Pacific Gas and Electric Company shall make financial contributions to the Forest Service to install tables, fire rings, toilets, and traffic controls that are identified as a result of monitoring. The amount of the financial contribution will be commensurate with the level of use attributable to the License as identified by monitoring.
4. Pacific Gas and Electric Company shall be responsible for repair and major rehabilitation of License recreational facilities, including Pacific Gas and Electric Company-owned or Forest Service-owned facilities within the FERC license boundary and Pacific Gas and Electric Company-owned or Forest Service-owned facilities outside of the boundary that are considered License induced.
5. In consultation with the Forest Service, Pacific Gas and Electric Company shall prepare a Proposed Annual Operating Plan, which shall describe Pacific Gas and Electric Company responsibilities in regard to recreation.

***Reservoirs.*** The Haas-Kings River license shares use of Courtright Reservoir and Lake Wishon with the Helms Pumped Storage license. Recreational facilities and uses associated with these reservoirs were described previously for the Helms Pumped Storage license. No other reservoirs are used by the Haas-Kings River license.

***Downstream Rivers.*** Rivers and streams downstream of Haas-Kings River facilities include Helms Creek and North Fork Kings River between Courtright and Wishon Reservoirs, and North Fork Kings River between Wishon and Black Rock Reservoirs. Recreational opportunities and use associated with these river reaches were described previously for the Helms Pumped Storage license. In addition to these river reaches, downstream rivers include the North Fork Kings River below Black Rock Reservoir and the main fork of the Kings River below the North Fork Kings River.

***North Fork Kings River Below Black Rock Reservoir.*** Downstream of Black Rock Reservoir, access to the North Fork Kings River is limited, provided only by a dirt road from Black Rock Station and where Black Rock Road bends close to the river, such as at Balch Camp. Because of the limited access to the river between Black Rock Reservoir and the mouth of Dinkey Creek near

Balch Camp (approximately eight miles downstream of Black Rock Reservoir), use of the river is mainly limited to anglers (USFS, 2000t). No recreational facilities are located along this reach of the North Fork Kings River.

Haas-Kings is currently undergoing relicensing and the FERC recently issued their Environmental Assessment (EA) in support of a new license. The FERC's EA contains a thorough description of the whitewater resources in the Kings River Basin. Whitewater boating takes place on the NFKR during the spring in the reach downstream of Black Rock Reservoir between the confluence of Dinkey Creek to the main stem of the Kings River (Holbeck and Stanley, 1998). Whitewater craft include kayaks, canoes, inflatable kayaks, and rafts. The American Whitewater Affiliation (AWA) reports that some boaters also paddle the reach during the winter and summer. Forest Service Road FS11512 runs parallel to the reach and provides easy access to most sections. AWA reports that some paddlers continue the run to the main stem of the King's River and take-out in the vicinity of Kirch Flat. Pacific Gas and Electric Company reports that 6 to 12 people may run the river during the spring when flows exceed 400 cfs. AWA and San Joaquin Paddlers estimate use of 100 to 200 user days per year.

The AWA reports that some expert and advanced whitewater boaters run the NFKR between the Balch Afterbay and Dinkey Creek. AWA rates this 1.65-mile reach as Class V+ . The optimum boating flow is estimated at between 200 and 300 cfs, though it can be run at flows as low as 140 cfs, and some expert rafters and kayakers have run at flows up to and exceeding 500 cfs. These flows are only available during brief periods of high water years. Access to the reach is gained by lowering boats by rope down a steep slope. Once on the river, exit is very difficult until one reaches Balch Camp.

Pacific Gas and Electric Company did not propose any recreation enhancements to the NFKR area in their Application for New License. However, during the relicensing process, the California DBW (CDBW) recommended that Pacific Gas and Electric Company improve access for whitewater boating to the lower reach of the NFKR below Balch Camp. The FERC concurred with the CDBW's recommendation and included a provision in their EA that Pacific Gas and Electric Company provide a river parking and access point in close proximity to Balch Camp and Dinkey Creek siphon. The FERC's EA recognizes that since the access is needed near the whitewater, it cannot reasonably be included within current boundaries. Therefore, this recommendation would require Pacific Gas and Electric Company, at some point in the licensing process, to revise license boundaries to include the access and parking areas. A new owner would be subject to this same condition.

The Forest Service 4(e) Condition Number 7 requires Pacific Gas and Electric Company to conduct a Recreation User Survey. The FERC's EA recommends that the survey be expanded to include whitewater boating and include consultation with AWA, San Joaquin Paddlers, and CDBW. The FERC also recommended that Pacific Gas and Electric Company install a flow telephone information line to provide recorded data on flows in the NFKR and Kings River and about any

planned water releases from the Balch Afterbay and the Kings River powerhouses. According to the FERC, provision of better information on flows in the NFKR would enhance use of the resource by local and regional whitewater boaters. These provisions are expected to be incorporated into a new license. Therefore, a new owner would have to comply with these provisions.

***Main Fork of the Kings River Below North Fork Kings River.*** The main stem of the Kings River is a popular recreational whitewater boating river in California. Craft types include rafts, kayaks, canoes, tubes, and river-running dories. The Forest Service issues permits to three commercial whitewater rafting companies that operate on the river. Trips begin upriver from a put-in at Garnet Dike and run nine miles to base camps and take-out spots at Keller Ranch and below the Kirch Flat bridge. Parking for two of the companies to accommodate 75 vehicles is provided at Keller Ranch through a land-use agreement with PG&E Co (use of the Keller Ranch property is described in more detail below under the “Watershed Lands” discussion). The rafting season begins April 1<sup>st</sup> and runs generally through June depending on the amount of water available that season. Rafting is best at flows between 5,000 and 8,000 cfs. Whitewater in this reach of river is classified as Class III-IV on the International Scale of Difficulty. The permit issued to rafting companies allow 70 people per trip and four trips per weekend day (for a maximum of 280) and six trips per weekday (for a maximum of 420 users). Table 4.6-29 summarizes rafting activity in the river from 1989 to 1994 for the three permitted rafting companies.

**Table 4.6-29 Commercial Whitewater Rafting – Kings River**

Year	Service Days
1989	9,567
1990	8,805
1991	8,921
1992	7,714
1993	13,138
1994	8,218

Source: USDA, USFS

There is no official use information regarding private non-commercial whitewater rafting on the Kings River. The Forest Service estimates use at about 1,000 to 1,500 service days. (A service day is defined as a day or any part of a day on National Forest Service lands for which an outfitter or guide provides goods or services, including transportation to a client.) Pacific Gas and Electric Company estimates use up to 3,300 service days, or 25 percent of the commercial use.

Kayakers and open canoeists find paddling on the Kings River best at volumes between 500 and 5,000 cfs. Tubing is popular in July when the water temperature is warmer and water flow is

below 3,000 cfs. Most private rafters, canoeists, kayakers, and tubers exit the river at the Forest Service's Kirch Flat Campground, with 25 campsites and a day use group site for 50 people. People also take out adjacent to Pacific Gas and Electric Company's Kings River Powerhouse, where there is easy access to the river for transport vehicles.

AWA reports that whitewater boating also occurs on the Kings River below the Kings River powerhouse when the water level in the Pine Flat Reservoir is low. A reach of up to seven miles of Class II-III whitewater is runnable using outfall from the powerhouse (The Kings River powerhouse has a hydraulic capacity of 947 cfs). These conditions are available in drought years in the late summer and early fall.

During the relicensing process, Pacific Gas and Electric Company proposed to enhance access to the Kings River by developing, within three years of licensing, a 12-car parking lot at the Kings River powerhouse for car-top boat access. The FERC concurred with Pacific Gas and Electric Company's proposal and further indicated that Pacific Gas and Electric Company should incorporate features in their proposal that enhance the use of the area as a whitewater boating take-out site, mainly to accommodate the growing demand for whitewater boating access in the area. This provision is expected to be incorporated into the new license. Therefore, a new owner would have to comply with this recommendation.

The main fork of the Kings River is designated as a Wild and Scenic River. In addition to boating, trout fishing also occurs in the Kings River near the Kings River Powerhouse.

***FERC-Licensed Areas and Watershed Lands.*** Land within the FERC license boundary for the Haas-Kings River license totals approximately 3,782 acres, including properties around Courtright Reservoir and Lake Wishon (3,428 acres, all overlapping with the Helms Pumped Storage license); properties along roads and tunnels, and around the Haas Powerhouse, switchyard, and other facilities (234 acres, with 15 acres overlapping with the Balch license); areas around tunnels and roads used in connections with the Kings River Powerhouse (89 acres, with 0.6 acres overlapping with the Balch license); and around the Kings River Powerhouse (31 acres). Ownership of property within the FERC license boundary is divided between Pacific Gas and Electric Company and the Sierra National Forest (PG&E Co., 1999b). Pacific Gas and Electric Company's property subject to transfer includes 1,007 acres, including 549 acres within the FERC license boundary (including 512 acres in water areas) and 458 acres of Watershed Lands.

Dispersed uses of lands around Courtright Reservoir and Lake Wishon were described previously for the Helms Pumped Storage license. No recreational facilities are located at the Haas Powerhouse, which is located north of Black Rock Reservoir approximately 70 miles east of Fresno. Recreation uses in the vicinity of this reservoir are discussed below for the Balch license.

Similarly, no developed recreational facilities are provided at the Kings River Powerhouse. The USFS, however, operates Kirch Flat Campground approximately two miles upstream of the Kings

River Powerhouse. This campground has 25 units and a capacity of 125 PAOT (PG&E Co., 1986d). The Kings River Powerhouse is located on the Kings River approximately two miles downstream of the confluence of the north and main forks of the river.

Forest Service lands around the Kings River Powerhouse are brushy, dry, and, except along the Kings River, are relatively unattractive for dispersed recreation use during hot summer months. An existing unpaved road near the powerhouse provides access to a former powerhouse construction laydown area abutting Pine Flat Reservoir. This road continues down below the high-water level to meet the Kings River during periods of low water levels. This road has been used for car-top boat access to the eastern arm of Pine Flat Reservoir. This area is also used for parking and fishing access to the river and reservoir (PG&E Co., 1986d).

As discussed previously, kayaking and whitewater rafting also occur on the Kings River near the Kings River Powerhouse, with commercial outfitters providing guided whitewater rafting trips from Garnet Dike on the Middle Fork Kings River down to Pine Flat Reservoir. Pacific Gas and Electric Company owns property on the south side of the Kings River upstream of where the river enters Pine Flat Reservoir. This property is currently used as a parking area for whitewater rafting companies. Known as Keller Ranch, the property is not located within the FERC boundaries of Pacific Gas and Electric Company's Kings River Bundle licenses; however, Pacific Gas and Electric Company documents indicate that Keller Ranch is included in properties to be divested by Pacific Gas and Electric Company (PG&E Co., 2000e). Pacific Gas and Electric Company has had a lease agreement with the USFS for more than seven years which grants them use of the Keller Ranch property. In turn, the Forest Service has issued permits to three whitewater boating companies for use of the property for parking vehicles and buses used to ferry rafters from a nearby rafting take-out area (USFS, 2000t).

The Keller Ranch property reportedly provides one of the few flat areas in the vicinity of the rafting take-out site with access to the river for parking vehicles and buses. The parking area on the property is a flat dirt area on the uphill side of the river access road. The access road is a narrow one-lane paved road which is not safe for parking large vehicles and buses. Access to the Keller Ranch property is considered key to the operations of the commercial whitewater rafting companies because the property provides them a safe parking area for buses used to shuttle rafters. Without the parking area, the access road to the take-out area would become blocked by parked cars (USFS, 2000t)

### ***Balch (FERC 0175)***

***Reservoirs.*** Reservoirs associated with the Balch license include Black Rock Reservoir and Balch Afterbay. Both are located within the boundary of the Sierra National Forest.

***Black Rock Reservoir.*** Black Rock reservoir, a relatively small reservoir with 36 surface acres and 2.5 miles of shoreline, is located in the North Fork Kings River gorge, approximately 70 miles east

of Fresno. Access to Haas Powerhouse and Black Rock Reservoir is by Black Rock Road from either the southwest or northeast. From the southwest, the road is paved to Black Rock Reservoir. From the northeast, Black Rock Road is unpaved from McKinley Grove Road to the Haas Powerhouse Road, and is paved thereafter. This narrow, winding portion of Black Rock Road is not recommended for travel by vehicles with trailers. Driving time to the license area is approximately two-and-one-half to three hours from Fresno. The recreation season for Black Rock Reservoir, which is at an elevation of approximately 4,100 feet, typically extends from April 1 to November 1 (PG&E Co., 1986a).

Swimming and boating are prohibited at Black Rock Reservoir because of Pacific Gas and Electric Company's hydroelectric operating requirements and public safety concerns. The primary recreation activities at and near the reservoir are fishing, camping, hunting, and hiking.

Pacific Gas and Electric Company operates and maintains Black Rock Campground above the reservoir's northwestern shoreline. Because of the distance of the campground from the reservoir, fluctuations in lake levels do not affect the usability of the campground, although low lake levels diminish the reservoir's appeal (USFS, 2000t). Black Rock Campground consists of eight single-unit sites and one double unit site (10 total units), and has a capacity of 50 PAOT (PG&E Co., 1986a). The campground offers picnic tables, fire rings, potable water, two vault toilets, and refuse containers.

Based on a recreational use survey conducted by Pacific Gas and Electric Company and the USFS during the 1984-85 recreation seasons, use of Black Rock Campground, a nearby scenic overlook, and a fishing access trail at the reservoir totaled 840 visitor-days, well below the capacity of these facilities. Use of the campground was about 12 percent of capacity during the 1984-85 recreation seasons (PG&E Co., 1986a). In 1996, Black Rock Campground received 364 visits (see Table 4.6-28).

***Balch Afterbay.*** Balch Afterbay, with only seven surface acres of water, is located in a narrow, steep-sided canyon with poor access. Located approximately 3.4 miles downstream of Black Rock Reservoir, the afterbay is fenced off to the public at the existing powerhouse tailrace and the diversion dam. Boating, swimming, and fishing are prohibited at Balch Afterbay due to public safety concerns. No developed recreational facilities are located at Balch Afterbay or the nearby Balch Powerhouses.

***Downstream Rivers.*** Rivers downstream of the Balch license include the North Fork Kings River and the main stem of the Kings River below North Fork Kings River. Recreational facilities and uses associated with these river reaches were previously described for the Haas-Kings River license.

***FERC-Licensed Areas and Watershed Lands.*** Land within the FERC license boundary for the Balch license totals approximately 269 acres, including an irregularly shaped parcel around Black

Rock Reservoir (91 acres); a parcel around Black Rock Creek Diversion Dam and Campground (12 acres); a strip of land along Balch Tunnel (24 acres); a strip of land along two penstocks (9 acres); a parcel around the powerhouses, switchyard, and Balch Afterbay (30 acres); strips of land along project roads (27 acres; and a parcel around Balch Camp (76 acres). All land within the license boundaries is part of the Sierra National Forest and is owned by the federal government. Pacific Gas and Electric Company owns no land within or outside of the FERC license boundary subject to transfer as part of the Balch license (PG&E Co., 1999b). All recreational facilities associated with the Balch license are located on Sierra National Forest lands.

Sierra National Forest lands are available for dispersed use around Black Rock Reservoir; however, high summer temperatures, steep rocky slopes, and dense brush limit dispersed use of the area surrounding the reservoir. The terrain in the vicinity of license facilities is generally steep, with rocky slopes of 30-100 percent over approximately three-fourths of the license area (FERC, 1998a). Pacific Gas and Electric Company provides and maintains a fishing access trail at Black Rock Reservoir as part of the Balch license. This 0.5-mile-long trail begins on the north shore of the reservoir and provides fishing access to the northern shore and to the North Fork Kings River upstream from its entry into the reservoir, and is used primarily by Black Rock Campground overnight users. Rainbow and brown trout are caught in the North Fork Kings River. In 1996, this fishing access area received 222 visits by anglers and other recreationists (see Table 4.6-28).

Dispersed uses also occur at the nearby Black Rock Scenic Overlook, which is located near Black Rock Campground on a small promontory above the reservoir. The overlook consists of an informational display and a small bench.

Except for Black Rock Campground, Sawmill Flat Campground, located in the Sierra National Forest off Black Rock Road approximately 10 miles north of Black Rock Reservoir, is the only campground in the vicinity of Balch license facilities. This campground consists of 15 units and is operated by the USFS. It is located a few miles west of the North Fork Kings River and has no direct road access to the river.

No developed recreational facilities are located at Balch Afterbay or the nearby Balch Powerhouses. The land around these facilities is unsuitable for recreational use in the granite-walled river gorge. No public recreational use in the immediate vicinity of the afterbay and powerhouses has been recorded, although limited fishing in the North Fork Kings River and hiking and hunting on national forest lands may occur (PG&E Co., 1986a). Dispersed uses from access points near license facilities totaled 1,062 visits in 1996, excluding visitation associated with Black Rock Campground and the fishing access trail at the reservoir (see Table 4.6-28).

**Bundle 19: Tule River*****Tule River (FERC 1333)***

Tule River license facilities are located approximately 40 miles northeast of Porterville at elevations ranging up to approximately 4,000 feet at the Tule River Diversion Dam. The license facilities can be reached by traveling along State Route 190 east through Porterville and Springville to Wishon Drive, which provides access to project facilities. Pacific Gas and Electric Company provides no developed recreational facilities as part of the Tule River License, although Article 106 of the license's FERC license requires Pacific Gas and Electric Company to fund part of the annual expenses for operation and maintenance of the Wishon Campground, a USFS facility (FERC, 1995). Pacific Gas and Electric Company is required to provide the USFS with 10 percent of the annual operation and maintenance costs for Wishon Campground through the term of the FERC license (PG&E Co., 1986c).

Tule River License Facilities diverts water from the North Fork Middle Fork (NFMF) Tule River at a small diversion dam located about three miles upstream of the Tule River Powerhouse. It also diverts water from a small tributary, referred to as Hossack Creek, and from a spring referred to as Doyle Springs. Water diverted at these three sources is conveyed through a system of a ditch, tunnel and pipe to the Tule Powerhouse, which is located at the confluence of the North and Middle Forks of the Tule River.

***Reservoirs.*** No storage reservoirs are associated with the Tule River license, and none are located upstream.

***Downstream Rivers.*** No recreational facilities have been developed by Pacific Gas and Electric Company on downstream rivers as part of the Tule River license. The only feature of recreational interest is the license's Wishon Pump Pool on the NFMF Tule River near Wishon Campground. Wishon Pump Pool is an existing natural pool in the river that was enlarged to a diameter of 35 to 45 feet by the construction of the Tule River license's Doyle Springs Diversion Dam sometime between 1914 and 1924 (PG&E Co., 1986c). Because Wishon Pump Pool is the only water area large enough for swimming within easy walking distance of Wishon Campground, it is a popular swimming spot for campground users, although use at any one given time is generally not heavy. A recreation survey conducted by Pacific Gas and Electric Company during the 1984 summer recreation season found that daily observed use of Wishon Pump Pool in the afternoon averaged four PAOT during weekdays, eight PAOT during weekends, and 20 PAOT during holidays, with peak use of 30 PAOT (PG&E Co., 1986c). Recreationists using the campground and other access points along Wishon Drive also fish and swim in adjoining segments of the NFMF Tule River down to its confluence with the Middle Fork of the Tule River (MFTR).

Trout fishing occurs along the NFMF Tule River and MFTR from access points along Wishon Drive and State Route 190. The CDFG stocks the river with rainbow trout at several access points. According to the published fishing guidebook *California Fishing: The Complete Guide* (Stienstra,

1995), a good access point for fishing is in the vicinity of the Wishon Drive turnoff from State Route 190.

There are no documented references regarding whitewater boating opportunities on the NFMF River or Hossack Creek. However, during an April 27, 2000, field trip, a vehicle with three kayaks on top was observed along the county road that parallels the NFMF River, suggesting boating may be possible. According to the Pacific Gas and Electric Company plant operator, the NFMF River was boated for the first time in 1999 by three boaters visiting from the Kern River. Since then, several other boaters have run the NFMF River. Sufficient water for boating would only be available during spring runoff, which generally occurs during April and May.

The Middle Fork of the Tule River (MFTR) is boatable from the its confluence with the NFMF Tule River to the Lumbeau Picnic Area located about five miles downstream (Holbeck and Stanley, 1998). The run is considered Class V+ on the International Scale of Difficulty and is boatable when flows range from 250 to 400 cfs. Water diverted from the NFMF Tule River is discharged back into the river just upstream of the MFTR confluence. As such, operation of the Tule River license does not affect the MFTR run.

Other downstream uses within the region have been previously described.

***FERC-Licensed Areas and Watershed Lands.*** The FERC license boundary for the Tule River license includes a 1.28-acre parcel around the Tule River Powerhouse, an area that extends 50 feet to either side of the penstock and tunnel center line, and an irregularly-shaped parcel around the diversions dams and headworks. Ownership of land within the license boundary is divided among the USFS, Pacific Gas and Electric Company, and other private landowners. Pacific Gas and Electric Company owns a 42-acre parcel around the Hossack Creek Diversion Dam that is subject to transfer, including 10 acres within the FERC license boundary and 32 acres outside of the boundary (PG&E Co., 1999b). No developed recreational facilities are located on this 42-acre parcel. Pacific Gas and Electric Company also owns a three-acre parcel of Watershed Land adjacent to the MFTR surrounded by land within the Sequoia National Forest. No recreational facilities or use are associated with this parcel (PG&E Co., 1999a).

The NFMF Tule River runs through a watershed that is rugged and mountainous, with steep, rocky slopes. No developed recreational facilities are provided by Pacific Gas and Electric Company on Watershed Lands; however, 36-unit Wishon Campground, operated by the U.S. Forest Service, is located within 500 feet of the Tule River license's Wishon Pump Pool on the NFMF Tule River. As discussed previously, the license for the Tule River license requires Pacific Gas and Electric Company to partially fund annual operation and maintenance costs for Wishon Campground. In addition to swimming and fishing in the NFMF Tule River, campground users also engage in hunting, hiking, and off-road vehicle use on surrounding Sequoia National Forest land. Pacific Gas and Electric Company assists the Forest Service in deterring dispersed overnight camping on Forest Service lands by alerting authorities to unauthorized camping.

During the 1984 summer recreation season, Pacific Gas and Electric Company conducted a recreational user survey of facilities in the vicinity of the Tule River license. The survey indicated that 51 percent of Wishon Campground users came from the Los Angeles area, and 41 percent from the Bakersfield area (including Visalia, Porterville and Springfield). Wishon Campground was the destination site for 87 percent of its visitors, with only 13 percent using other campgrounds in the area during their trip. Primary recreational activities of campground users were almost evenly divided among swimming, camping, relaxing, hiking or walking, fishing, and other activities. Additionally, 41 percent of campground visitors recreated at or near Wishon Campground, while 21 percent recreated along the river within walking distance of the campground, and 14 percent recreated specifically at Wishon Pump Pool. Based on the survey, annual use of Wishon Campground was estimated to be approximately 7,500 visitor-days, representing 33 percent of the campground's available capacity based on 180 PAOT. Dispersed day-use in the license area was estimated at 5,170 visitor-days annually, bringing total recreation use in the license vicinity to 12,660 annual visitor-days (PG&E Co., 1986c).

Camp Wishon Resort, which is operated by a concessionaire under permit by the USFS, is located near Wishon Campground, north of the NFMF Tule River and Wishon Drive. The resort consists of a recreational trailer park with 22 spaces, six rental cabins, a grocery store, and a small restaurant (PG&E Co., 1986c).

Areas in the immediate vicinity of the license are also available for dispersed use, with swimming being the most popular activity, especially along the NFMF Tule River. Recreationists park along the shoulder of the county road and walk to the river using unmaintained footpaths.

## **Bundle 20: Kern Canyon**

### ***Kern Canyon (FERC 0178)***

Pacific Gas and Electric Company's Kern Canyon license is located at the mouth of Kern Canyon on the lower Kern River. The license facilities divert up to 650 cfs of water from the Kern River at a small diversion dam located about 1.6 miles upstream of the Kern Canyon Powerhouse. Lake Isabella, owned and operated by the U.S. Army Corps of Engineers, is located about 34 miles upstream of the license. Southern California Edison's (SCE's) Kern River No. 1 (KR-1) Hydroelectric license is located immediately upstream of Pacific Gas and Electric Company's Kern Canyon license and the Olcese Water District's Rio Bravo license is located immediately downstream.

No developed recreational facilities are provided by Pacific Gas and Electric Company as part of the Kern Canyon license. License facilities range in elevation from approximately 700 feet at the Kern Canyon Powerhouse to 950 feet at the Kern Canyon Diversion Dam.

***Reservoirs.*** The Kern Canyon license includes a 3-acre diversion reservoir (Kern Canyon Reservoir) on the Kern River, which is an impoundment where water backs up at the Kern Canyon

Diversion Dam. No public access is available to the reservoir and little or no recreation occurs at and near the reservoir, which is located in a steep, rocky part of the Kern Canyon.

***Downstream Rivers.*** The entire Kern River between Lake Isabella and the Kern Canyon Diversion Dam is considered boatable, as is the Kern River below the Kern Canyon Powerhouse. There are no documented references regarding whitewater boating opportunities along the two miles of river between the Kern Canyon Diversion Dam and the Kern Canyon Powerhouse. However, SCE's Application for New License (Southern California Edison, 1994) indicates the reach immediately upstream of Pacific Gas and Electric Company's Kern Canyon license is boated by about 100 boaters per year.

The FERC license for the Kern Canyon license does not contain provisions regarding whitewater boating. However, the FERC license for the Kern Canyon license expires in 2005 and Pacific Gas and Electric Company is engaged in the relicensing process. It is unclear at this time what the outcome of relicensing might be and whether any provisions for whitewater boating would be included in the new license. However, given the popularity of boating on the Kern River, some provisions are likely. SCE recently relicensed the KR-1 license. In their case, the FERC required SCE to conduct five years of recreation use monitoring to verify how much boating use occurs in the KR-1 bypassed reach and to determine whether flow releases for boating are warranted. A similar condition could be expected in the new Kern Canyon license. On the other hand, whitewater boating may not be considered an issue given the diverted reach is less than two miles long and good boating opportunities exist elsewhere on the Kern.

Between the Kern Canyon Diversion Dam and the Kern Canyon Powerhouse, fishing is the primary recreation use, although access to the Kern River is difficult. Anglers park at road turnouts and must scramble down rocky slopes to reach the river. Fish species in the license area include sucker, pike-minnow, hardhead, white catfish, and smallmouth bass (FERC, 1999b).

Downstream of the Kern Canyon Powerhouse to Lake Ming, dispersed recreation uses, including fishing, occur along the Kern River, although access, provided by unimproved dirt roads, is limited by difficult terrain along much of this reach.

***FERC-Licensed Areas and Watershed Lands.*** The FERC license boundary includes an irregularly shaped parcel around the Kern Canyon Powerhouse that extends 50 feet to either side of the penstock and tunnel center line and 3-surface acres around the diversion dam and headworks. Ownership of properties within the license boundary is divided among the U.S. Forest Service, Pacific Gas and Electric Company, and other private landowners. Pacific Gas and Electric Company owns 664 acres of land subject to transfer, including 52 acres within the FERC license boundary and 612 acres outside of the boundary. These holdings include a section of land surrounding the Kern River from just south of the Kern Canyon Diversion Dam to the Kern Canyon Powerhouse. No public or private recreational facilities are located on this property (PG&E Co., 1999b).

The license facilities are located in a hot, arid, low-elevation desert environment. Recreational use of lands near license facilities is light due to the rocky, steep terrain near facilities and the difficult access from nearby roads. Fishing and hiking are the principal activities within and near the license boundaries, although recreation use is light (FERC, 1999b). No developed recreational facilities are located along the Kern River until it reaches Lake Ming. Recreational facilities at Lake Ming have been described previously.

#### 4.6.5 STANDARDS OF SIGNIFICANCE

Recreation impacts could result from changes in hydrologic operations, land use development, mineral extraction practices, timber harvesting practices, or the allocation of water supply to recreational uses. Recreation impacts from project-induced changes are considered significant if they result in any of the following effects.

- Ten percent or greater reduction in baseline seasonal water-based recreational opportunities at recreation areas with important or unique resources, loss of access to these areas, or a substantial reduction in recreational facilities maintenance.

This significance threshold applies to the reduction of water-based recreational opportunities primarily as a direct result of changes in hydrologic operations. This threshold also applies to indirect effects on recreational opportunities caused by project-induced changes in fishery conditions or visual quality conditions.

The significance of changes in hydrologic operations on recreational opportunities are determined based on the frequency in which recreational facilities become unusable or water conditions (flows or lake levels) are unacceptable to support water-dependent activities such as boating, fishing, and shore activities. Hydrologic data by season and by type of water year under baseline and project conditions are used to assess the impacts. The ten percent threshold takes into account the natural variability in hydrologic conditions from year to year and the precision of the operations modeling.

This significance threshold also applies to the permanent or long-term loss of access to water-based recreational opportunities as a result of changes in land use practices, including mineral extraction, forest harvest, and land development. Long-term is generally considered to be 5 years or more. The availability of alternative means of access to water-based recreational opportunities is considered in determining the significance of access restrictions.

Lastly, this significance threshold applies to expected changes in maintenance practices that are likely to result in the degradation of existing water-based recreational facilities, such as boat launches and day use areas at reservoirs. Maintenance practices are assumed not to change at recreational facilities that are under FERC's regulatory authority because these practices are conditioned by the FERC license.

- Permanent or long-term loss of access to land-based recreational opportunities at recreation areas with unique or important resources, the permanent or long-term loss of these opportunities due to potential land development, or a substantial reduction in maintenance practices at land-based facilities.

This significance threshold applies to the permanent or long-term loss of access to land-based recreational opportunities as a result of changes in land use practices, including mineral extraction, forest harvest, and land development. Long-term is generally considered to be 5 years or more. The availability of alternative means of access to land-based recreational opportunities is considered in determining the significance of access restrictions.

This significance threshold also applies to the permanent or long-term loss of land-based recreational opportunities as a result of land development. Examples of potential impacts where this standard could apply include the likely conversion of lands used for camping, hiking, or other land-based recreational activities to commercial purposes.

Lastly, this significance threshold applies to expected changes in maintenance practices that are likely to result in the degradation of existing land-based recreational facilities, such as campgrounds or hiking trails on Watershed Lands. Maintenance practices are assumed not to change at recreational facilities that are under FERC's regulatory authority because these practices are conditioned by the FERC license.

- Decline in recreational opportunities resulting from the closure of recreation-serving businesses.

This significance threshold applies to indirect effects on recreational opportunities resulting from the closure of recreation-serving businesses. Businesses that provide services to recreationists, such as whitewater boating outfitters, lakeside resorts, or campgrounds, could close as a result of a reduction in sales or through the loss of a lease. If these businesses provide services to recreationists that would no longer be available either by this provider or other providers, then it is assumed that recreational opportunities would decline, an impact that is considered significant.

### 4.6.6 ANALYTICAL METHODS

#### 4.6.6.1 General Approach and Assumptions

The impact analysis considered five impact mechanisms in evaluating project-induced recreation impacts: 1) changes in hydrologic operations, 2) changes in land use development, 3) changes in timber harvest practices, 4) changes in mineral extraction, and 5) changes in the allocation of water supply that could serve recreational uses.

For evaluating recreation impacts related to changes in hydrologic operations, one baseline condition was used for purposes of comparison. As described in Chapter 3, this baseline condition "reflects the level of infrastructure development and market demand as of the year 2000." Two project scenarios were evaluated relative to the baseline condition, including the PowerMax Scenario and the WaterMax Scenario.

For evaluating impacts related to changes in land use development, mineral extraction, and timber harvesting practices, the baseline for assessing impacts is the existing condition of the affected lands. The license facilities evaluated in the impact assessment reflects the expected changes in resource conditions under a new owner. For changes in land use development, potential impacts on existing recreational opportunities and facilities were evaluated based on the intensity of expected land development, as identified in tables presented in Chapter 4.1, Land Use. Information developed for expected changes in mineral extraction and timber harvesting practices also was evaluated for potential impacts on recreation.

For changes in the allocation of water supply, the baseline is hydrologic conditions as defined by existing contractual agreements to provide consumptive water supply. License conditions that were evaluated include potential changes to lake levels (and flows) as a result of changes in contractual deliveries for urban and agricultural purposes. Because these changes in hydrologic conditions were not modeled as part of the hydrologic analysis, the assessment of potential impacts to recreation at potentially affected lake levels and flows was qualitative.

The methods used to evaluate impacts associated with the three impact statements for recreation are described in the following sections. Specific issues raised during scoping were considered in the development of the analytical methods.

#### **4.6.6.2 Methods for Evaluating Impacts on Water-Based Recreational Opportunities and Facilities**

##### **Hydrology-Related Impacts**

The assessment of hydrology-related impacts on recreational opportunities focused on key reservoirs and rivers in each of the watersheds. All potentially affected reservoirs and rivers were screened to identify the key recreation areas. Three criteria were used in the screening process: 1) Is there substantial recreational activity that occurs at the reservoir or river? 2) Are there unique recreation resources associated with the recreation area? and 3) Is there flexibility in the operation of the project such that hydrologic conditions at the reservoir or river could be affected? Substantial recreational activity was defined as at least 10,000 visitor days, which is the equivalent of about 100 visitor days per day (a visitor day is a 12-hour period) over the summer recreation season (Memorial Day to Labor Day). Unique recreational resources included opportunities for fishing for anadromous species or special fishery designation, and whitewater boating opportunities.

To be considered a key (Category 1) recreation area, a reservoir or river reach had to have either substantial recreational activity or have unique recreation resources and have medium to high operational flexibility. The key recreation areas were flagged for more detailed analysis. Reservoirs or river reaches that met one of the first two criteria but did not have medium to high operational flexibility were classified as Category 2 (important recreation area with low potential for affecting water-based recreational opportunities). Other recreation areas were determined to have little potential for significantly affecting recreational opportunities. The results of this

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screening process for recreation areas in the five watersheds are presented in Tables 4.6-30 through 4.6-32.

**Table 4.6-30 Screening Table of Potentially Affected Recreation Areas (Reservoirs and Rivers/Streams) in the Shasta Region and DeSabra Region**

	Substantial Water Dependant Recreational activity (Y/N) <sup>(a)</sup>	Unique Recreational opportunities (Y/N) <sup>(b)</sup>	Level of Operational Flexibility (L/M/H) <sup>(c)</sup>	Level of Analysis Classification (1, 2, 3) <sup>(d)</sup>
<b>Hat Creek 1 and 2 #2661</b>				
Hat Creek #1 (Cassel Pond)	N	N	L	3
Hat Creek #2 (Baum Lake)	N	N	L	3
Crystal Lake	N	N	L	3
<b>Pit No. 1 #2687</b>				
Pit 1 Forebay (Big Lake)	N	N	M	3
<b>Pit 3, 4, and 5 #233</b>				
Lake Britton	Y	N	M	1
Pit 4 Forebay	N	N	L	3
Pit 5 Diversion	N	N	L	3
Pit 5 Open Conduit	N	N	M	3
<b>McCloud-Pit #2106</b>				
McCloud Reservoir	N	Y	H	1
Iron Canyon Reservoir	N	N	H	3
Pit 6 Forebay	N	N	H	3
Pit 7	N	N	H	3
<b>Kilarc/Cow Creek #606</b>				
Kilarc Forebay	N	N	L	3
Cow Creek Forebay	N	N	L	3
<b>Battle Creek #1121</b>				
North Battle Creek Reservoir	N	N	L	3
Macumber Reservoir	N	N	L	3
Lake Grace Forebay	Y	N	L	3
Lake Nora	N	N	L	3
Coleman Forebay	N	N	L	3
<b>Hamilton Branch</b>				
Mountain Meadows Reservoir	N	N	H	3
<b>UNNFR #2105</b>				
Lake Almanor	Y	Y	H	1
Belden Forebay	Y	N	H	1

**Table 4.6-30 Screening Table of Potentially Affected Recreation Areas (Reservoirs and Rivers/Streams) in the Shasta Region and DeSabra Region**

	Substantial Water Dependant Recreational activity (Y/N) <sup>(a)</sup>	Unique Recreational opportunities (Y/N) <sup>(b)</sup>	Level of Operational Flexibility (L/M/H) <sup>(c)</sup>	Level of Analysis Classification (1, 2, 3) <sup>(d)</sup>
Butt Valley Reservoir (rest stop only)	Y	Y	H	2
<b>Rock Creek-Cresta #1962</b>				
Rock Creek Reservoir	N	N	H	3
Cresta Reservoir	N	N	H	3
Shady Rest (not on Reservoir)	Y	N	Not Applicable	3
<b>Poe #2107</b>				
Poe Reservoir	N	N	H	3
<b>Bucks Creek #619</b>				
Bucks Lake	Y	Y	H	1
Three Lakes	N	N	L	3
Lower Bucks Lake	N	N	L	3
Grizzly Forebay	N	N	L	3
<b>Butte Creek #803</b>				
Round Valley Reservoir	N	N	L	3
Philbrook Reservoir	N	N	L	3
DeSabra Forebay	N	N	L	3
<b>Lime Saddle</b>				
Kunkle Reservoir	N	N	L	3

## Notes:

- (a) The determination of “substantial” is necessarily subjective. However, a rule of thumb would be at least 10,000 visitor days, which is the equivalent of an average of 100 visitor days per day throughout the summer season (Memorial Day to Labor Day).
- (b) Unique recreational opportunities include whitewater boating and fishing for anadromous species such as salmon or steelhead. Unique recreational opportunities are likely to occur only along rivers and streams. However, a “YES” response also could reflect the availability of recreational opportunities in areas without substitute opportunities.
- (c) The determination of operational flexibility (L= low, M= medium, and H= high) should reflect conditions identified in the assessment prepared by the Operations Modeling Group. Consideration should be given to all time periods (hourly, daily, weekly, seasonally). The determination should reflect the highest flexibility rating for the different time periods.
- (d) The categories for making this determination are as follows:  
1= Important recreation area (i.e., either substantial use or unique opportunities) with medium to high potential for affecting the recreation area.  
2= Important recreation area with low potential for affecting recreation area.  
3= Lesser important recreation area.

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**Table 4.6-31 Screening Table of Potentially Affected Recreation Areas (Reservoirs and Rivers/Streams) in the Drum Region and Motherlode Region**

	Substantial Water Dependent Recreation (w/1) (Y/N)(a)	Unique Recreational Opportunities (Y/N)(b)	Level of Operational Flexibility (L, M, H)(c)	Level of Analysis Classification (1, 2, 3)*(d)
<b>Drum Watershed Region</b>				
<b>South Yuba Bundle</b>				
Bowman Lake	N	N	H	3
Upper Rock Lake	N	N	H	3
Stream below Upper Rock Lake	N	N	H	3
Lower Rock Lake	N	N	H	3
Texas Creek to Culbertson Creek	N	N	H	3
Culbertson Lake	N	N	H	3
Creek to Texas Creek	N	N	H	3
Texas Creek to Lindsey Creek	N	N	H	3
Upper and Middle Lindsey Lake	N	N	L	3
Creek to Lower Lindsey Lake	N	N	L	3
Lower Lindsey Lake	N	N	L	3
Lindsey Creek to Texas Creek	N	N	L	3
Texas Creek to Canyon Creek	N	N	L	3
Canyon Creek to South Yuba River	N	N	L	3
Upper Feeley Lake	Y	N	H	2
Stream to Lower Feeley	Y	N	H	3
Lower Feeley Lake	Y	N	H	3
Lake Creek to Fall Creek	N	N	H	3
Fall Creek to South Yuba River	N	N	H	3
Blue Lake	N	N	H	3
Rucker Creek to Rucker Lake	N	N	H	3
Rucker Lake	N	N	H	3
Stream from Rucker lake to South Yuba	N	N	H	3
Fuller Lake	Y	N	L	3
Stream from Fuller Lake to Lake Spaulding	N	N	L	3
Meadow Lake	N	N	H	3
Stream to Fordyce Lake	N	N	H	3

**Table 4.6-31 Screening Table of Potentially Affected Recreation Areas (Reservoirs and Rivers/Streams) in the Drum Region and Motherlode Region**

	Substantial Water Dependent Recreation (w/1) (Y/N)(a)	Unique Recreational Opportunities (Y/N)(b)	Level of Operational Flexibility (L, M, H)(c)	Level of Analysis Classification (1, 2, 3)*(d)
White Rock Lake	N	N	H	3
North White Rock Creek to North Creek	N	N	H	3
North Creek to Fordyce Lake	N	N	H	3
Fordyce Lake	N	N	H	3
Lake Sterling	N	N	H	2
Stream to Fordyce Lake	N	N	H	3
Fordyce Creek to Lake Spaulding	Y	N	H	2
Kidd Lake	N	N	H	3
Stream to South Yuba River	N	N	H	3
Upper Peak Lake	N	N	H	3
Lower Peak Lake	N	N	H	3
Stream to South Yuba River	N	N	H	3
South Yuba to Lake Spaulding	Y	N	L	2
Lake Spaulding	Y	Y	M	1
Jordan Creek below dams and above South Yuba River	Y	N	L	3
South Yuba River from Jordan Creek to Rucker Creek	Y	N	M	2
Stream Below Deer Creek Power House to Scott's Flat Reservoir	N	N	H	3
Scott's Flat Reservoir	Y	N	M	2
South Yuba to Canyon Creek	Y	N	M	2
South Yuba to Highway 49 crossing	Y	N	M	2
South Yuba to Englebright Reservoir	Y	N	M	2
<b>North Yuba Bundle</b>				
<b>Drum Powerhouse 1, 2</b>				
Lake Valley Reservoir	Y	N	H	2
Kelly Lake	N	N	H	3
North Fork to Diversion	N	N	M	3
North Fork to East Fork	Y	N	M	2

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**Table 4.6-31 Screening Table of Potentially Affected Recreation Areas (Reservoirs and Rivers/Streams) in the Drum Region and Motherlode Region**

	Substantial Water Dependent Recreation (w/1) (Y/N)(a)	Unique Recreational Opportunities (Y/N)(b)	Level of Operational Flexibility (L, M, H)(c)	Level of Analysis Classification (1, 2, 3)*(d)
Drum Forebay	N	N	M	3
Drum Afterbay	N	N	M	3
Bear River to Dutch Flat Powerhouse 1	N	N	M	3
Bear River to Rollins Reservoir	N	N	M	3
Rollins Reservoir	Y	N	L	2
Bear River to Combie Lake	Y	N	L	2
Lake Combie	Y	N	L	2
<b>Alta PH</b>				
Canyon Creek to Towle Canal	N	N	L	3
Creek to Bear River	N	N	L	3
Canyon Creek to Pulp Mill Diversion	N	N	L	3
Alta Lake	N	N	L	3
Canyon Creek to North Fork American River	N	N	L	3
<b>Halsey PH</b>				
Halsey Forebay	Y	N	L	2
Dry creek to Halsey Powerhouse	N	N	L	3
Halsey Afterbay	N	N	L	3
Dry Creek below Halsey Afterbay	N	N	L	3
<b>Wise Powerhouse 1, 2</b>				
Wise Canal to Rock Lake	N	N	L	3
Rock Lake	N	N	L	3
Wise Forebay	N	N	L	3
Auburn Ravine Creek below Wise Powerhouse	N	N	L	3
<b>Newcastle PH</b>				
Folsom Reservoir	Y	Y	L	2
<b>Potter Valley Bundle</b>				
<b>Potter Valley Powerhouse</b>				
Lake Pillsbury	Y	N	L	2
Eel River from Scott Dam to Van Arsdale Reservoir	Y	Y	L	2
Van Arsdale Reservoir	N	N	L	3

**Table 4.6-31 Screening Table of Potentially Affected Recreation Areas (Reservoirs and Rivers/Streams) in the Drum Region and Motherlode Region**

	Substantial Water Dependent Recreation (w/1) (Y/N)(a)	Unique Recreational Opportunities (Y/N)(b)	Level of Operational Flexibility (L, M, H)(c)	Level of Analysis Classification (1, 2, 3)*(d)
Eel River to Output Creek	Y	Y	L	2
Russian River to Lake Mendocino	N	N	L	3
<b>South Yuba-Bear River Bundle</b>				
Yuba River from Narrows Powerhouse to Highway 20 Bridge	Y	Y	L	2
Yuba River from Highway 20 Bridge to Marysville	Y	Y	L	2
<b>Chili Bar Bundle</b>				
Chili Bar Reservoir	N	N	M	3
11N11E31pro	N	N	M	3
11N10E25pro	N	N	M	3
Chili Bar Run	Y	Y	M	1
Gorge Run	Y	Y	M	1
Folsom Reservoir	Y	N	M	3
<b>Mokelumne River Bundle</b>				
09N19E27/28ws	N	N	M	3
09N18E12ws	N	Y	M	2
09N18E15ws	N	N	M	3
Upper Blue Creek Reservoir	N	N	H	3
09N18E12pro	N	N	H	3
09N19E18pro	N	N	H	3
Middle Blue Creek	N	N	H	3
Lower Blue Creek Reservoir	N	N	H	3
Lower Blue Creek	N	N	H	3
Lower Deer Creek	N	N	H	3
North Fork Mokelumne to Meadow Creek	N	N	M	3
Twin Lake Reservoir	N	N	H	3
Middle Meadow Creek	N	N	H	3
Meadow Lake Reservoir	N	N	H	3
Lower Meadow Creek	N	N	H	3
North Fork Mokelumne to Salt Springs Reservoir	N	N	M	3
Salt Springs Reservoir	N	N	M	3

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**Table 4.6-31 Screening Table of Potentially Affected Recreation Areas (Reservoirs and Rivers/Streams) in the Drum Region and Motherlode Region**

	Substantial Water Dependent Recreation (w/1) (Y/N)(a)	Unique Recreational Opportunities (Y/N)(b)	Level of Operational Flexibility (L, M, H)(c)	Level of Analysis Classification (1, 2, 3)*(d)
North Fork Mokelumne to Bear River	N	N	M	3
Upper Bear River Reservoir	N	N	H	3
Lower Bear River Reservoir	Y	N	H	2
Lower Bear River	N	N	M	3
North Fork Mokelumne to Tiger Creek Afterbay	N	Y	L	1
Tiger Creek Regulator	N	N	L	3
Tiger Creek Forebay	N	N	L	3
Tiger Creek Afterbay	N	N	L	3
North Fork Mokelumne to Electra Diversion Reservoir	N	Y	L	1
Electra Diversion Reservoir	N	N	L	3
North Fork Mokelumne to Electra Afterbay	N	N	L	3
Lake Tabeaud	N	N	L	
Electra Afterbay	N	N		3
Mokelumne River to Pardee	N	Y	L	2
<b>Stanislaus River Bundle</b>				
Relief Reservoir	N	N	M	3
Streams to Kennedy Mds.	N	N	M	3
Middle Fork Stanislaus River to Clark Fork	Y	N	M	2
Strawberry Reservoir	Y	Y	M	1
South Fork Stanislaus River to Philbrook Diversion	N	N	L	2
Middle Fork Stanislaus River to Sandbar Dam	N	N	L	3
Middle Fork Stanislaus River to Stanislaus Afterbay	N	N	M	3
Stanislaus River to South Fork Stanislaus River	N	Y	M	2
South Fork Stanislaus to Lyons Reservoir	N	N	L	2
Lyons Reservoir	N	N	L	3

**Table 4.6-31 Screening Table of Potentially Affected Recreation Areas (Reservoirs and Rivers/Streams) in the Drum Region and Motherlode Region**

	Substantial Water Dependent Recreation (w/1) (Y/N)(a)	Unique Recreational Opportunities (Y/N)(b)	Level of Operational Flexibility (L, M, H)(c)	Level of Analysis Classification (1, 2, 3)*(d)
South Fork Stanislaus to Stanislaus River	N	N	L	3
Phoenix Powerhouse to Phoenix Lake	N	N	L	3
Phoenix Lake	N	N	L	3
<b>Merced River Bundle</b>				
Merced Falls Reservoir	N	N	L	3
Crock/Hoffman Diversion Reservoir	N	N	L	3

- (a) The determination of "substantial" is necessarily subjective. However, a rule of thumb would be at least 10,000 visitor days, which is the equivalent of an average of 100 visitors per day throughout the summer season (Memorial Day to Labor Day); cells with number codes are Watershed Lands.
- (b) Unique recreational opportunities include whitewater boating and fishing for anadromous species such as salmon or steelhead. Unique recreational opportunities are likely to occur only along rivers and streams. However, a "YES" response also could reflect the availability of recreational opportunities in areas without substitute opportunities.
- (c) The determination of operational flexibility (L= low, M= medium, and H= high) should reflect conditions identified in the assessment prepared by the Operations Modeling Group. Consideration should be given to all time periods (hourly, daily, weekly, seasonally). The determination should reflect the highest flexibility rating for the different time periods. The second letter denotes the following time period for the flexibility h = hourly, d = daily, w = weekly, s = seasonal, a = all time periods.
- (d) The categories for making this determination are as follows:  
 1 = Important recreation area (i.e., either substantial use or unique opportunities) with medium to high potential for affecting the recreation area.  
 2 = Important recreation area with low potential for affecting recreation area.  
 3 = lesser important recreation area.

**Table 4.6-32 Screening Table of Potentially Affected Recreation Areas (Reservoirs and Rivers/Streams) in the Kings Crane-Helms Region**

Bundle/project/Recreation Area	Substantial Water-Dependent Recreational activity (Y/N) (a)	Unique Recreational opportunities? (Y/N) (b)	Level of Operational Flexibility (L/M/H) (c)	Level of Analysis Classification (1,2,3) (d)
<b>Crane Valley Bundle</b>				
<b>Crane Valley license</b>				
Chilkoot Lake	N	N	H	3
Bass Lake	Y	N	H	1
Manzanita Lake	Y	N	H	1
Corrine Lake	N	N	H	3
Chilkoot Creek (Chilkoot Lake to NF Willow Creek)	N	N	H	3

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**Table 4.6-32 Screening Table of Potentially Affected Recreation Areas (Reservoirs and Rivers/Streams) in the Kings Crane-Helms Region**

Bundle/project/Recreation Area	Substantial Water-Dependent Recreational activity (Y/N) (a)	Unique Recreational opportunities? (Y/N) (b)	Level of Operational Flexibility (L/M/H) (c)	Level of Analysis Classification (1,2,3) (d)
NF Willow Creek (Chilkoot Creek to San Joaquin River)	N	N	H	3
SF Willow Creek (Browns Creek Diversion to NF Willow Creek)	N	N	H	3
San Joaquin 3 Forebay	N	N	H	3
San Joaquin 2 Forebay	N	N	H	3
San Joaquin River (NF Willow Creek to Kerckhoff Reservoir)	N	Y	L	2
<b>Kerckhoff Bundle</b>				
<b>Kerckhoff license</b>				
Kerckhoff Reservoir	N	N	H	3
San Joaquin River (Kerckhoff Reservoir to Millerton Lake)	N	Y	L	2
<b>Kings River Bundle</b>				
<b>Helms Pumped Storage license</b>				
Courtwright Reservoir	Y	N	L	2
Wishon Reservoir	Y	N	L	2
Helms Creek (Courtwright Reservoir to Wishon Reservoir)	N	N	L	3
NF Kings River (Courtwright Reservoir to Wishon Reservoir)	N	N	L	3
<b>Haas-Kings River license</b>				
NF Kings River (Wishon Reservoir to Black Rock Reservoir)	N	N	L	3
<b>Balch license</b>				
Black Rock Reservoir	N	N	L	3
Williams Creek	N	N	L	3
NF Kings River (Black Rock Reservoir to Pine Flat Reservoir)	Y	Y	L	2
<b>Tule River Bundle</b>				
<b>Tule River License</b>				
Hossack Creek (Diversion Dam to NF of Middle Fork of Tule River)	N	N	L	3
NFMT Tule River (Diversion Dam to MF Tule River)	N	N	L	3

**Table 4.6-32 Screening Table of Potentially Affected Recreation Areas (Reservoirs and Rivers/Streams) in the Kings Crane-Helms Region**

Bundle/project/Recreation Area	Substantial Water-Dependent Recreational activity (Y/N) (a)	Unique Recreational opportunities? (Y/N) (b)	Level of Operational Flexibility (L/M/H) (c)	Level of Analysis Classification (1,2,3) (d)
MF Tule River (NFMF Tule River to Lake Success)	Y	Y	L	2
<b>Kern River Bundle</b>				
<b>Kern Canyon license</b>				
Kern River (Diversion Dam to Lake Ming)	N	N	L	3

## Notes:

- (a) The determination of "substantial" is necessarily subjective. However, a rule of thumb would be at least 10,000 visitor days, which is the equivalent of an average of 100 visitors per day throughout the summer season (Memorial Day to Labor Day).
- (b) Unique recreational opportunities include whitewater boating and fishing for anadromous species such as salmon or steelhead. Unique recreational opportunities are likely to occur only along rivers and streams. However, a "YES" response also could reflect the availability of recreational opportunities in areas without substitute opportunities.
- (c) The determination of operational flexibility (L= low, M= medium, and H= high) should reflect conditions identified in the assessment prepared by the Operations Modeling Group. Consideration should be given to all time periods (hourly, daily, weekly, seasonally). The determination should reflect the highest flexibility rating for the different time periods.
- (d) The categories for making this determination are as follows:  
 1 = Important recreation area (i.e., either substantial use or unique opportunities) with medium to high potential for affecting the recreation area.  
 2 = Important recreation area with low potential for affecting recreation area.  
 3 = Lesser important recreation area.

The analysis of changes in hydrologic operations at key recreation areas focused on important hydrologic thresholds that support water-based recreation activities. Where possible, experienced lake and river users were interviewed to determine lake levels or flows associated with the usability of recreational facilities. These interviews focused on identifying water conditions in reservoirs and along rivers that support different water-based recreational activities. Historical data on average monthly lake levels were also reviewed to corroborate anecdotal information developed from the interviews.

The results of this research were used to determine how often acceptable conditions were achieved under baseline, PowerMax and WaterMax Scenarios. A comparison of these scenarios determined if the project could cause a 10 percent reduction in times when acceptable conditions occur.

Hydrology modeling data for key reservoirs and rivers under baseline and project conditions (PowerMax and WaterMax Scenarios) were then evaluated to compare the frequency in which lake levels or flows exceed or dropped below the important hydrologic thresholds. Monthly simulation

data over the 25-year period of record (1975 through 1999) were reviewed, focusing primarily on the peak recreation season (Memorial Day through Labor Day).

For recreation areas where substantial use occurs in the “shoulder” seasons (i.e., spring and fall), the simulation data also were reviewed for these periods. End-of-month data for March, April, and May were used to evaluate impacts during the early (spring) season. End-of-month data for September and October were used to evaluate impacts during the late (fall) season. The number of months that hydrologic conditions were above or below a threshold was identified and compared to the baseline condition. Where a change occurred in the number of months in which lake levels or flows were above or below a particular threshold, an impact was identified.

Hydrologic effects were evaluated during different types of water years. To do this, the 25 years of simulated hydrologic data were grouped by type of water year. Five types of water years were generally used to group the data: critically dry, dry, normal, above normal, and wet. The entire 25 years of hydrologic data were used to characterize “average” water year conditions. Because the type of water year varies by watershed depending on the amount of rainfall occurring in the watershed, the water year classification varied by watershed.

Table 4.6-33 is a summary of the selected water years, the water year-types they are assumed to represent, the ranking position by percent of all water years that they are equal to or wetter than, and the percent of all water years each water year is assumed to be representative of in this analysis.

**Table 4.6-33**

Water Year	Water Year-Type	Percent of Water Years Equal to or Wetter Than	Percent of Water Years Represented
1977	Driest	1.1	12.4
1981	Dry	23.7	21.0
1989	Slightly Dry	43.0	17.2
1975	Slightly Wet	58.1	16.1
1978	Wet	75.3	21.0
1983	Wettest	100.0	12.3

The assessment of hydrologic-related impacts on recreational opportunities also considered indirect effects resulting from project-induced changes in fishery conditions and visual quality conditions. Results from the impact assessment for these resources were incorporated into the analysis of recreation impacts.

***Assessment Methods Specific to Chili Bar Bundle Water-Based Recreation Impact***

Given the above assessment and background material presented in the setting section of this chapter, the following flow-related parameters and threshold criteria were used to evaluate the degree to which potential alternative Chili Bar license operations may impact the present whitewater use pattern. Displacement refers to the degree of potential loss of uses within the context of the

existing commercial and non-commercial use patterns. In the parameters, boatable flow does not refer to navigability, rather it refers to the flow magnitude which in conjunction with the other parameters results in the anticipated level of displacement.

#### **Flow-Dependent Parameter Thresholds: Present Whitewater Use Pattern**

##### Weekdays

(Low use and congestion levels)

No displacement:

- Boatable flow = 1,400 cfs
- Boatable flow duration = 3 hrs or more
- Boatable flow start = no later than 9:00AM

25 percent kayak and non-comm. raft displacement:

- Boatable flow = 1,200 cfs
- Boatable flow duration = 3 hrs
- Boatable flow start = no later than 9:00 AM

75 percent kayak and non-comm. raft displacement

- Boatable flow = 1,000 cfs
- Boatable flow duration = 3 hrs
- Boatable flow start = no later than 9:00 AM

80 percent commercial raft displacement

(100 percent non-commercial displacement)

- Boatable flow = less than 1,000 cfs
- Boatable flow duration = less than 3 hrs
- Boatable flow start = later than 9:00 AM

##### Weekend-days

(High use and congestion levels)

No displacement:

- Boatable flow = 1,400 cfs
- Boatable flow duration = 4 hrs or more
- Boatable flow start = no later than 8:00AM

25 percent kayak and non-comm. raft displacement:

- Boatable flow = 1,400 cfs
- Boatable flow duration = 3 hrs
- Boatable flow start= no later than 9:00 AM

75 percent kayak and non-comm. raft displacement:

- Boatable flow = 1,200 cfs
- Boatable flow duration = 3 hrs
- Boatable flow start= no later than 9:00 AM

80 percent of commercial raft displacement

(100 percent non-commercial displacement)

- Boatable flow = less than 1,000 cfs
- Boatable flow duration = less than 3 hrs
- Boatable flow start = later than 9:00 AM

The above thresholds are proposed only for the purposes of evaluating alternative future Chili Bar license operations. They have not been developed necessarily within the context of present flow patterns on this resource but rather in the context of how flow patterns may be expected to impact boating visitation given the present whitewater boating pattern (time and location, the regional demand, and preferences for flow conditions). They are intended to evaluate the degree to which displacement may occur to the present use pattern given that these desires are not met. Therefore, an assessment of present powerhouse operations may indicate an existing displacement of boaters due to adverse flow conditions. In addition, the evaluation assumption is that the above threshold criteria apply when these conditions are both known and consistent. They are not applicable if the conditions are infrequent or cannot be anticipated by boaters before arriving on-site. It has been estimated that as few as two or three occurrences of unanticipated non-boatable flow days and trip

cancellations can have a seasonally lasting effect on commercial users. A greater number of non-boatable flow days can be accommodated without secondary impacts to whitewater client interest provided that those non-boatable days are scheduled in advance of seasonal commercial trip bookings. However, when these circumstances approach about 1/4 of the otherwise usable days of the season, serious changes can be expected in general client interest and visitation (Lotus Campground, 2000).

Assessment of the influences of potential Chili Bar license operations on whitewater recreation is based on the comparisons of 1) use estimates developed using the above thresholds and the expected new flow release patterns; and 2) the recent, short-term average whitewater use levels and patterns under existing and historic conditions.

It should also be kept in mind that these parameters and threshold criteria have been selected without the benefit of any appropriate on-river studies of boater use patterns and itinerary adjustments due to variable flow and user level conditions. As such, any results should be considered as only a sensitivity assessment and a determination of relative probable impacts between alternatives. It is possible that future project operations would alter the release regime to the point that the above parameters and criteria predict complete displacement of all whitewater activities. This is, however, a prediction of impact to the existing use pattern. It is possible that new release regimes could effectively eliminate the present use pattern but still provide whitewater boating with commercial operators and non-commercial users employing different strategies. These new strategies may imply changed use levels and economic activity.

Other recreational opportunities and activities that may be influenced by Chili Bar license operations include the various activities involving the use of the water itself and near water activities that may be affected by streamflow changes. This category includes casual floating and boating uses by individuals in undersized craft and limited on-river skill. No specific information presently exists on the total number of users in all of these activity types, nor the characteristic time and space use patterns. It may be assumed that these users include many of the 340,000 day-use visitors to Marshall Gold State Historic Park, many of the residents along the river, many of the day-use visitors at several of the private and public access points, and many of the users of the private campgrounds on the river's edge. Daily capacity of those campgrounds is reported at about 3,000 users, of which all but about 1,000 are associated with commercial whitewater boating trips (El Dorado County, 2000). The annual user-days at these campgrounds is presently unknown.

The primary effect of future Chili Bar license operations which may influence these activities is the spill attribute of Chili Bar Dam when the operations of SMUD's White Rock Powerhouse, Pacific Gas and Electric Company's Chili Bar Powerhouse, and Chili Bar Reservoir are considered together. Presently, daily spills are a frequent occurrence during the summer recreation season. Characteristically, these spills occur in the late afternoon and early evening. Sometimes these spills result in a peak superimposed on the daily power release from Chili Bar Powerhouse, or sometimes they occur during or after the daily Chili Bar Powerhouse release recession limb. When the sudden

peak flows occur, there is always the safety risk associated with inexperienced river users. These risks include casual floaters being entrained in flows and carried into rapids of greater hydraulic intensity than they or their craft are capable of dealing with, stranding waders, swimmers, and anglers, etc. No known fatalities have occurred due to these peaking spills, however, the potential for this outcome is present.

#### ***Future Flow-Pattern Effects on Whitewater Use Levels Downstream of Chili Bar***

The El Dorado County Parks and Recreation Division has provided whitewater boating use levels by month of the main boating season, April through September, for the 1996-99 seasons (El Dorado County, 2000). To extend the estimated changes in whitewater use patterns to an estimate of changes in whitewater recreation use levels under the conditions of new Chili Bar license operations, a set of assumptions were used:

The selected representative water years, and the assumed percentage representations, adequately reflect long term annual hydrologic conditions.

The foregoing estimates of use pattern changes due to the project by water year types and months of the main use season are reasonable approximations.

Each month is composed of 29 percent weekend-days and 61 percent weekdays.

The historic weekday/weekend-day use patterns for the commercial and non-commercial sectors will remain the same in the future (commercial, 42/58 percent; non-commercial, 32/68 percent) (El Dorado County, 1998).

When only one of the two main runs is available, displaced demand and carrying capacity issues will limit use to 66 percent of total daily uses for both the commercial and non-commercial sectors.

The fourth week in June will have the same atypical flow patterns as July.

The atypical flow patterns will be in same in September as in August.

For comparative purposes, future potential increased demand is not a necessary component in estimating changed use levels due to the project.

#### **Changes in Land Use Practices**

Information on expected changes in mineral extraction and timber harvesting practices and on the potential development of lands currently used for water-based and land-based recreation activities was used to determine if recreational opportunities and/or facilities would be interfered with or eliminated. As described in the Standards of Significance section, long-term or permanent loss of recreational opportunities or facilities was considered to be a *significant impact*.

For assessing potential impacts on water-based recreational opportunities and facilities related to changes in ownership, it was assumed that new owners would aggressively deny access to these lands. In assessing the significance of restricted access to these lands, the availability of alternative means of access to affected areas was evaluated. Also, for evaluating potential impacts on maintenance of water-based recreational facilities, it was assumed that only facilities on lands that were not within FERC-Licensed Areas could be affected because facilities within FERC-Licensed Areas are conditioned by the license.

### **Methods for Evaluating Impacts on Land-Based Recreational opportunities and Facilities**

The impact assessment for land-based recreational opportunities and facilities focused on potential changes in access to and conversion of lands. Land-based recreational opportunities included camping, hiking, and other recreational activities that do not depend on water resources.

The analysis of access impacts focused on Watershed Lands where substantial recreational activity occurs. Similar to the assessment of impacts on water-based recreational opportunities, it was assumed that a new owner(s) would deny access across Watershed Lands. Such restrictions to access have been implemented with past transferances and are assumed here in order to allow a conservative assessment of potential impact. Denying access to areas that support unique recreational opportunities or where substantial dispersed recreation is known to occur was considered an impact. As described in the Standards of Significance section, these impacts were considered significant if the lands supported a relatively large share of dispersed recreational activity.

For the assessment of potential impacts on land-based recreational opportunities and facilities related to changes in ownership, it was assumed that new owners would aggressively deny access to these lands. In assessing the significance of restricted access to these lands, the amount of acreage that would be lost in each watershed was evaluated relative to the total acreage within affected USFS district(s) where the Watershed Lands are located. This “semi-quantitative” approach to the assessment was followed up, where possible, with a discussion with USFS personnel concerning the importance of these “restricted” lands for dispersed recreation in the USFS District and what the potential loss of access means for dispersed recreational opportunities. If the restricted lands represented a relatively small proportion of lands used for dispersed recreation and are not particularly unique, then the impact was judged adverse but less-than-significant. In some cases, professional judgment was used to determine the importance of access restrictions to dispersed recreational opportunities.

### **Methods for Evaluating Recreation-Related Impacts on the Local Economy**

The assessment of potential recreation-related impacts on the local economy focused on changes in recreational activity at key recreation areas, including reservoirs, rivers, and Watershed Lands. This analysis addresses the impacts on recreational opportunities resulting from the displacement or closure of recreation-serving businesses.

In evaluating potential effects on recreational opportunities resulting from the closure of recreation-serving businesses, changes in recreation use at key recreation areas were estimated based on expected changes in water-based recreational opportunities. It was assumed that the percentage change in the frequency of recreational opportunities would result in a similar percentage change in recreation use. The estimated change in use was then converted to a change in visitor spending based on visitor spending information. For reservoirs, average spending per visitor day was estimated at \$21 based on information from a study of spending at reservoirs in California (USCOE, 1992). For commercial whitewater boating opportunities, average spending per visitor day was estimated at \$60 based on 1991 survey data collected for the Trinity River (National Biological Service, 2000). The estimated change in spending was then compared to overall spending at the affected recreation area to determine if the change in spending was likely to result in the closure of any recreation-serving businesses. If businesses were likely to close, then the potential impact on recreational opportunities was assessed. The availability of other businesses to provide similar services was considered in determining the significance of the impact.

Businesses dependent upon land-based recreation are considerably less prone to closure as a result of project impacts and do not warrant a quantitative analysis as was prepared for water-based recreation. Mitigation measures such as the preservation of existing access routes are adequate to avoid project impacts on these businesses.

#### **4.6.7 INTRODUCTION TO IMPACTS AND MITIGATION MEASURES**

For Recreation, the following impacts have been identified:

- Impact 6-1: The project would substantially diminish existing water-based recreational opportunities or the condition of water-based recreational facilities (Significant).
- Impact 6-2: The project would substantially diminish existing land-based recreational opportunities or the condition of land-based recreational facilities (Significant).
- Impact 6-3: The project would cause reduced use of affected recreation areas, resulting in substantial adverse local economic effects (Significant).

#### **4.6.8 IMPACT 6-1: IMPACTS, ANALYSIS, AND MITIGATION MEASURES**

**Impact 6-1: The project would substantially diminish existing water-based recreational opportunities or the condition of water-based recreational facilities. (Significant)**

The following assessment identifies project impacts on water-based recreational opportunities and recreational facilities throughout the five watershed regional bundles. The impact discussion is organized by individual bundles within those five regions. There are 20 individual bundles. Within each of the individual bundle discussions, specific recreational elements are identified (i.e., reservoirs, rivers, streams). The discussion of each recreational element contains two subheadings, “Impacts Identified as Less Than Significant” and “Impacts Identified as Significant,” that discuss

the potential for project-related impacts on water-based recreational opportunities and facilities related to that element.

### **4.6.8.1 Impact 6-1: Shasta Regional Bundle**

The Shasta Regional Bundle is located in portions of Shasta and Tehama Counties. Approximately 38,439 acres of Watershed Land are proposed for transfer to a new owner(s) within the Shasta Regional Bundle. The Land Use section (Chapter 4.1) concludes that development could occur in the Shasta Regional Bundle for a total of approximately 3,036 EDUs (an EDU is an Equivalent Dwelling Unit, equal to one dwelling unit or a unit of any other use, including commercial, recreation resort, or other). A total of 20,500 acres in the entire bundle have timber management potential. Only one area in the Shasta Regional Bundle, near Lake Britton, includes mineral extraction potential. As development occurs upon the Watershed Lands, it is assumed that decrease in public access to key recreational areas could occur.

#### **Bundle 1: Hat Creek**

##### ***Hat Creek 1 and 2 (FERC 2661)***

Hat Creek is the most popular recreational resource in this bundle. Water-based recreational opportunities on Hat Creek focus on the three-mile portion of the stream below the Hat Creek 2 powerhouse designated a Wild Trout Stream. This area includes fishing access trails and a parking area. Limited fishing access on Hat Creek is available outside of the license boundaries, particularly downstream of the license, where there are additional parking areas, access trails, and a county park.

***Impacts Identified as Less Than Significant.*** In accordance with FERC license conditions, the minimum flows in Hat Creek are required to ensure the existing fishery will remain viable. As discussed in Chapter 4.4 (Fisheries and Aquatic Biological Resources) of this EIR, the potential changes in hydrologic operations under the project would result in a *less than significant* impact on fisheries resources in Hat Creek.

Approximately 100 acres of Watershed Lands located in the Hat Creek 1 and 2 license area are projected in the Land Use section to be used for timber harvest management. The timber harvest potential for an aggressive logging scenario indicates that selected even-aged harvest would occur in this bundle. Harvesting of this timber would affect only a small part of the project area for relatively short and intermittent periods of time. There are other areas on Hat Creek that provide alternative fishing opportunities if timber harvest occurs. Therefore, this impact would be considered *less than significant*.

There are no documented water supply agreements in the Hat Creek 1 and 2 license. Therefore, recreation activities would not be affected by changes in water supply agreements.

The water-based recreational facilities provided by Pacific Gas and Electric Company in the Hat Creek 1 and 2 license, a campground at Cassel Lake and a parking area and fishing access on Baum Lake, are required by FERC license conditions and would not be affected by the project.

The potential exists for mining to occur on licensed lands in this license area. No specific proposals for such operations, however, are currently pending. Should mining be proposed, it would be subject to environmental review and implementation of mitigation measures. If mining is pursued in the future, it is possible that operations could occur near some of the streams used for fishing. These operations would likely result in increases in ambient noise levels, dust, and traffic that could affect fishing opportunities nearby. The effects of these operations, however, would be highly localized and alternative nearby fishing sites would still be available near the potential mining sites. The effect of future project-related changes in mining operations on fishing opportunities is considered to be *less than significant*.

***Impacts Identified as Significant.*** Development on Watershed Lands associated with Hat Creek 1 and 2 license could be subject to the development of up to 594 EDUs. This development could preclude access to the upper portions of Hat Creek, an important fishing area. Access would still be available further downstream, but the quality of the rural fishing experience would be reduced since the area would be more urban in character. The reduction in access, combined with the impaired quality of experience for a substantial portion of this important fishing area, is considered a *significant impact*.

Pacific Gas and Electric Company owns Watershed Lands that straddle the Pit River in the area of the Hat Creek 1 and 2 license. South of the Pit 1 Forebay Dam, Watershed Lands are used to access the Pit River for fishing. A new owner could restrict public access across these parcels, reducing recreational fishing opportunities at a popular and unique recreation area. This is considered to be a *significant impact*.

## **Bundle 2: Pit River**

The Fall and Pit rivers, Lake Britton, and McCloud Reservoir are the key recreation destinations in the Pit River Bundle. Fishing, power boating, camping, hiking, and wildlife viewing are the major recreational activities in this bundle.

### ***Pit 1 (FERC 2687)***

The Fall and Pit rivers are the most popular recreation destinations for the Pit 1 license facilities.

### ***Fall River***

***Impacts Identified as Less Than Significant.*** Most of the land along the Fall River is in private ownership. Pacific Gas and Electric Company Watershed Lands account for a relatively small portion of lands with development potential along the river. Because of the relatively limited extent

of these lands along the river, potential development on these lands is not expected to significantly affect the quality of water-based recreation on or adjacent to the river.

The Callison Decree regulates stream flows in the Fall River upstream of the diversion dam ensuring that flows are adequate for fishing. This will ensure that any changes in the hydrological regime due to a new owner would be unlikely to alter the fishing activities on this river, resulting in no impact on fishing along the Fall River.

The Fall River Mills Community Services District (CSD) has an agreement with Pacific Gas and Electric Company to obtain 1,200 gallons per minute of water from the Pit 1 Forebay. This agreement expires with the FERC license and is therefore assumed to remain unchanged for the license. (FERC License 2687 expired 12/31/95. An application for a new license was submitted in 1993.) Recreation experiences on the river do not rely upon this domestic water supply source. Therefore, the project would have no impact in this area.

Due to the extensive private land holdings along the Fall River, there is little public access to the river. Pacific Gas and Electric Company Watershed Lands provide some of the only public access to the river. An example is a parcel located on Dana Road near Rick's Fishing Lodge, which provides one of the few free public access points to the Fall River for fishing. Although use is relatively low (CDFG closed car-top boat launch facilities in 1996 due in part to low use of the facility), the project impact on access to the Fall River would be considered *less than significant* due to the limited number of alternative access points.

***Impacts Identified as Significant.*** None.

### ***Pit River***

***Impacts Identified as Less Than Significant.*** The Pit River is used for whitewater boating and fishing in the Pit 1 project. All access points for boating are located within the license boundaries. Access to the lower portion of the Pit River for shoreline fishing and hiking opportunities is via the Pit 1 Powerhouse, located within non-FERC Pacific Gas and Electric Company lands.

There is timber management potential in the Pit 1 license areas and Watershed Lands. Logging could impact recreational opportunities in some areas. However, logging occurs intermittently over a large area and would only result in temporary impacts to water based recreational opportunities. Therefore the project will result in a *less than significant* impact on Pit 1 Bundle water-based recreation.

As discussed in Chapter 4.2 (Hydrology) of this DEIR, the Pit 1 license facility has low potential operational flexibility, and no significant changes in hydrologic operations are anticipated. Similarly, Chapter 4.3 Fisheries, identifies no significant project-related impact on fisheries in the Pit Riker below the Powerhouse tailrace. This is true for both PowerMax and WaterMax Scenarios. Since no project-related changes to the hydrology that supports recreational opportunities

on the segment of the Pit River from the Pit 1 Forebay to Lake Britton, therefore, are anticipated to have a *less than significant* impact on water-based recreation activities.

The current agreement with Pacific Gas and Electric Company and the Fall River Mills Community Services District (CSD) (see above) would end when the FERC license ends. As there is no linkage between recreation experiences on the river and water supply, the project would have *no impact* on recreation experiences or facilities in this area.

There are no Pacific Gas and Electric Company recreational facilities associated with the Pit 1 license in this area, and so the project would have *no impact* on water based recreational facilities in this area.

***Impacts Identified as Significant.*** Development projected to occur in the area to a development intensity of 714 EDUs on a total of 3,568 acres could reduce public access to the fishing opportunities on the Pit River, especially in the area around the town of Fall River Mills. The loss of this fishing access would be considered a *significant impact*. Potential development in the vicinity of McArthur Swamp could result in 17 EDUs on the total 6,135 acres in this area.

Access to the Pit River in this area is on Pacific Gas and Electric Company Watershed Lands and may be precluded by a new owner. Loss of this access would result in a *significant impact* because it would preclude public access to an important recreational fishing area and an area used for hiking and whitewater boating.

### ***Pit 3, 4, and 5 (FERC 0233)***

The key recreation attraction in this area is Lake Britton, which offers multiple recreational opportunities.

### ***Lake Britton***

***Impacts Identified as Less Than Significant.*** Approximately 2,900 acres of the Watershed Lands have timber management potential. Most of the land near Lake Britton with timber management potential is located in steep canyons along the Pit River. Since a small amount of fishing occurs on these lands, and the fishing would still continue under the project, the impact on water based recreational opportunities would be *less than significant*.

Lake Britton is a geologically important area due to the presence of diatomite in the vicinity. At the request of Pacific Gas and Electric Company, the Division of Mines and Geology has not yet officially designated Lake Britton as such. Should a new owner decide to actively mine the mineral close to recreational sites, the noise, safety hazards, and air emissions introduced by mining could occur but would be considered *less than significant* because the effects of mining would be localized near the mine and would not significantly affect the water-based recreational opportunities in general on the large lake.

There were no water supply contracts identified for the Pit 3, 4, and 5 license. Therefore, the project would have no impact on recreational opportunities or improvements as a result of changes in water supply.

Recreational facilities at Lake Britton are in good condition and have available capacity outside of the peak recreation season. Both the PowerMax and WaterMax Scenarios would result in lake levels being lower after September than the minimum 2,747 feet level associated with proper boat launch ramp operation. Project impacts on water-based recreational facilities are considered *less than significant*. The project therefore, will not result in an extended season or increased facilities use relative to baseline conditions.

WaterMax Scenario on Lake Britton was not modeled because it is not expected to alter lake levels substantially. See the Hydrology Section (chapter 4.3) of this EIR for additional data.

***Impacts Identified as Significant.*** The minimum lake level at which boat launch ramps are operational during the peak recreation season at Lake Britton is 2,747 feet. Under the baseline scenario, lake elevations do not fall below the minimum 2,747-foot level in any of the months analyzed. Under the PowerMax Scenario, lake levels would drop below the 2,747-foot minimum in 15 percent of the summer months (i.e. May through August) analyzed. The impact is more pronounced during the dry years and less pronounced during wet years. During the spring (March/April), lake levels would fall below the 2,747-foot elevation in 24 percent of the months analyzed. During the fall (September/October), lake levels would fall below the 2,747-foot elevation in 89 percent of the months analyzed under PowerMax Scenario.

The increases in the frequency that lake levels fall below 2,747 feet identified above are considered to be a *significant impact* because they exceed the 10 percent significance threshold.

Development assumptions described in Chapter 4.1 assume land development potential in the vicinity of Lake Britton at 264 EDUs. The Lake Britton Watershed Lands are primarily along the perimeter of the lake. In addition, Pacific Gas and Electric Company leases some of these lands along the lake's southern edge to the Department of Parks and Recreation (DPR), which are used for recreational facilities provided by the State of California at the McArthur-Burney Falls Memorial State Park. In addition, the Pacific Crest Trail crosses Watershed Land parcels along the southwest edge of Lake Britton. Development of the Watershed Lands around the lake could restrict access to this popular summer recreation destination, and restrict access along the Pacific Crest Trail in this area. Should the new owner(s) decline to renew the lease with DPR, the recreational opportunities at the park could be adversely affected as well. This impact is considered *significant*.

***Pit River***

***Impacts Identified as Less Than Significant.*** Approximately 2,900 acres of the Watershed Lands associated with this license are designated as having timber management potential. Logging of these lands could have a *less than significant* impact on water-based recreation because it is temporary and intermittent. After logging has occurred there would be a decrease in the quality of visual resources in the area until the forest grows back. The area would still be available for recreational purposes and so this impact would be *less than significant*.

The hydrological regime of the Pit River will not be altered sufficiently by the proposed project to affect the quality of the fishing opportunities on the Pit River. The hydrological data do not identify a substantial change in the hydrology regime of the river that would change the fishery (see Section 4.4: Fisheries and Aquatic Biology) or water-based recreation. Therefore, the project will have a *less than significant* impact on water-based recreational opportunities.

There are no recreational facilities provided by Pacific Gas and Electric Company on the Pit River for the Pit 3, 4 and 5 FERC license, so the project would have no impact on water-based recreational facilities.

***Impacts Identified as Significant.*** Watershed Lands associated with Pit 3, 4 and 5 FERC license, total approximately 11,980 acres. Various parcels of these lands straddle the Pit River. This land currently provides fishing access to portions of the Pit River including the wild trout section. The assumed development potential of these lands is 736 EDUs. Development activity could restrict access to popular fishing areas on the Pit River by closing access to the public. Because these areas offer excellent fishing and are heavily used, the reduction in access to fishing on the river would be a *significant impact*.

***McCloud-Pit (FERC 2106)******McCloud Reservoir***

***Impacts Identified as Less Than Significant.*** The McCloud Reservoir offers excellent public access for fishing and wildlife viewing. As the majority of Pacific Gas and Electric Company's lands associated with this license are within FERC-Licensed Areas, access for fishing, swimming, and boating would continue as required by FERC license conditions. In addition, there is no substantial land development potential (a total of 95 EDUs throughout the McCloud Reservoir land area) identified in the McCloud Reservoir area that could potentially inhibit access, therefore the project would have a *less than significant* impact on access to water-based facilities and opportunities.

Changes in hydrologic operations under the WaterMax Scenario relative to baseline conditions are only apparent in wet years when adequate water is available to support water-based recreational

activities. Project-related changes in hydrologic operations under the WaterMax Scenario, therefore, would have a *less than significant* impact on water-based recreational opportunities.

***Impacts Identified as Significant.*** During the spring (March/April), lake elevations under the baseline scenario would fall below the 2,650-foot elevation 6 percent of the months analyzed and 21 percent of the months analyzed under PowerMax Scenario. This would be a *significant impact* because it exceeds the 10 percent significance threshold. During the fall (September/October) the baseline would be below the 2,650-foot elevation 67 percent of the months analyzed in the baseline and 78 percent of the months analyzed under PowerMax Scenario. Because it exceeds the 10 percent significance threshold, this would be a *significant impact*.

### ***McCloud River***

***Impacts Identified as Less Than Significant.*** Watershed Lands associated with the McCloud-Pit license are privately owned, therefore, the project would have a negligible effect on public access to water-based recreational opportunities. As such, land use development or timber harvest impacts associated with the project would not significantly affect recreational opportunities.

The McCloud River provides excellent fishing in and near the McCloud-Pit Watershed Lands. There are, however, few areas below the McCloud Reservoir where public access is available, as most of the parcels surrounding the Watershed Lands are privately owned. Because access to existing fishing areas through Watershed Lands is currently very limited, no significant effects on access to fishing are expected to result from the project.

The only recreational resources located on the Watershed Lands associated with the southern edge of this license are along the Pit River, and these lands are very steep. Little water-based recreation currently occurs in this area. The project, therefore, would have a *less than significant* impact on recreational opportunities associated with these lands.

There are no Pacific Gas and Electric Company water-based recreational facilities associated with the McCloud River that would be significantly affected by the project.

***Impacts Identified As Significant.*** The Fisheries section (Section 4.4) of this EIR identifies a potentially significant adverse impact on the wild trout fishery on the McCloud River. This impact is based on the impact on a “special status species” but could adversely affect recreational fishing on this river. The fisheries analysis includes mitigation to address this impact.

### **Bundle 3: Kilarc-Cow Creek**

#### ***Kilarc-Cow Creek (FERC 0606)***

***Impacts Identified As Less Than Significant.*** The only water-based recreation at the Kilarc-Cow Creek license consists of a relatively low level of fishing at Kilarc Reservoir. Fishing on this reservoir (and access to it) occurs within FERC-License Areas and is therefore subject to FERC

license conditions and would not change with the project. In addition, no mining is expected in this bundle and there are no water supply contracts that could affect water-based recreation. No impacts of mining and water supply agreements are anticipated. Maximum development potential is 20 EDUs over a total of 2,603 acres, which is not likely to have an adverse impact on recreational resources.

Forestry activities are not anticipated in the vicinity of Kilarc Reservoir and so no forestry related impacts on water-based recreational opportunities are anticipated. Lastly, there are no developed water-based recreational facilities in the Kilarc-Cow Creek license and so no related impacts on such facilities are anticipated.

**Impacts Found to be Significant.** None.

#### **Bundle 4: Battle Creek**

##### ***Battle Creek (FERC 1121)***

**Impacts Identified As Less Than Significant.** The Land Use Section (Section 4.1) identifies the potential maximum development of 558 EDUs over 5,528 acres of Watershed Land and FERC License Areas in the Shingletown area of the Battle Creek project. Within the 1,354 acres in the Inskip (Tehama) area, development could result in 38 EDUs. The same analysis also projected that 2,400 acres in this project have timber management potential. Although the development and timber harvest potential for these areas is significant, there are no major recreational opportunities and no water-based facilities identified. Any impacts on such facilities or opportunities are considered *less than significant*.

**Impacts Identified as Significant.** None.

#### **Summary of Impact 6-1 to Entire Shasta Regional Bundle**

The project would result in the following significant impacts on the Shasta Regional Bundle:

- Access to Watershed Lands could be precluded as a result of development or the new owner closing access to license lands and could impact fishing on the Pit River near Hat Creek and the Fall River.
- Land use development on, and denial of access to, Watershed Lands associated with the Pit 1 license could impact fishing on the Pit River near Fall River Mills.
- PowerMax Scenario could result in the decreased use of water based recreational facilities and opportunities due to lower lake levels during the peak recreation period.
- Land use development in the vicinity of Lake Britton could impact access to water-based fishing opportunities.

#### 4.6.8.2 Impact 6-1: DeSabra Regional Bundle

The DeSabra Regional Bundle is located in portions of Lassen, Plumas, and Butte Counties. A total of approximately 20,712 acres of Watershed Lands are proposed for transfer to a new owner(s) in the DeSabra Regional Bundle. The Land Use Section (Chapter 4.1) suggests that substantial development could occur in the West Lake Almanor, Southeast Lake Almanor, Butt Valley Reservoir, Coal Canyon, and Humbug Valley parcel groups in the DeSabra Regional Bundle. The DeSabra Regional Bundle could result in the development of approximately 2,099 EDUs, (an EDU is an Equivalent Dwelling Unit, which is equal to one dwelling unit, or a unit of any other use, including commercial, recreation resort, or other). According to the modeling analysis, timber management could also increase on transferred lands.

#### **Bundle 5: Hamilton Branch**

##### *Hamilton Branch (non-FERC)*

***Impacts Identified as Less Than Significant.*** The Hamilton Bundle has a predicted maximum development potential of 35 EDUs. However, there are no water-based recreational facilities in this bundle that could be affected by the project. Therefore, there will be no impact on water-based recreational facilities in the Hamilton Branch.

There are no Watershed Lands near the water that could be developed or logged to create mining or logging related land-based recreation impacts.

***Impacts Identified as Significant.*** Water-based recreation does occur in this area. The new owner of this facility could deny access to any portion of this area since it is not FERC-licensed. This would result in a *significant impact* on water-based recreation because it is used for fishing and there is high demand in the area near Lake Almanor.

The Fisheries chapter (4.4) identified potentially significant impacts to fisheries on the Hamilton Branch between Mountain Meadows Reservoir and the Hamilton Branch Diversion. This impact on fisheries could reduce recreational fishing in an important fishing area. This impact on water-based recreational opportunities would be *significant* and can be mitigated by implementing mitigation.

#### **Bundle 6: North Fork Feather River**

##### *Upper North Fork Feather River (FERC 2105)*

##### *Lake Almanor*

***Impacts Identified as Less Than Significant.*** The Land Use Section (4.1) shows the Southeast Lake Almanor area to have a development potential of 615 EDUs; the West Lake Almanor/Prattville area to have a development potential of 276 EDUs; and the North Lake Almanor to have a development potential of 87 EDUs. Section 4.1 also shows the southeast Lake Almanor area has also been selectively logged recently.

Pacific Gas and Electric Company has provided a picnic area, which provides swimming and fishing access, and a scenic overlook at the southeast shore of Lake Almanor. Lake Almanor has existing private development on its shores, and although the area is attractive for recreation, it does not provide a pristine wilderness recreational experience. In addition, free public access is available at many points around the lake, so the potential development of the southeast shoreline would reduce neither the recreational experience nor public access to a degree that would be considered significant. The impact associated with development of Pacific Gas and Electric Company's Watershed Lands would be considered *less than significant*.

In the Lake Almanor area 1,700 acres of land have potential for timber management. Logging of the entire 1,700 acres is not expected to occur at once. Logging activities would be limited to specific areas and would be temporary. Therefore, the effects of these activities on water-based recreation likewise would be temporary and localized. The overall effect of project-related logging on water-based recreation on the lake, therefore, is considered to be *less than significant*.

Under the WaterMax Scenario, in dry years lake levels during the summer recreation season would drop below the 4,479-foot level (minimum lake level required for boat launch ramp operations) in about three percent of the months analyzed, compared to less than one percent of the months analyzed under baseline conditions. In wet and average years, there is no difference between the WaterMax Scenario and baseline. During the spring (March/April) the WaterMax Scenario and baseline lake levels would not fall below the 4,479-foot elevation. During the fall (September/October) lake levels would fall below the 4,479-foot elevation during 18 percent of the months analyzed in the baseline and 10 percent of the months analyzed in the WaterMax Scenario.

The impact of the project using the WaterMax Scenario is considered *less than significant* because the potential reductions in baseline seasonal water-based recreational opportunities, described above, will not exceed 10 percent relative to conditions shown for the baseline scenario.

The PowerMax Scenario would decrease the frequency during which lake levels in the summer recreation season fall below the 4,479-foot level. Under the baseline scenario, lake levels would fall below the 4,479-foot level in less than 1 percent of the months analyzed, while, under the PowerMax Scenario, lake levels would not fall below 4,479 feet for the months analyzed. This impact would be *less than significant* because this scenario results in a decrease in the number of months during which lake levels would be inadequate for boating.

During the off season, lake levels under PowerMax Scenario would result in lower levels compared to the baseline condition during average and wet water years. During the spring (March/April) under the baseline scenario, lake levels would not fall below the 4,479-foot elevation, while under the PowerMax Scenario, lake levels would fall below the 4,479-foot elevation 10 percent of the months analyzed. Because this occurs in the off season, however, it is considered to be a *less than significant* impact on recreational opportunities.

The level associated with flooding of private and public recreation land based facilities at Lake Almanor) 16 percent of the months analyzed during the period May through September in wet years. This percentage is the same as that derived for the baseline scenario. The PowerMax Scenario, therefore, would have no adverse impact on recreational facilities, relative to the baseline scenario, due to flooding. This impact would be *less than significant*.

Under the WaterMax Scenario, facilities flooding would occur in 20 percent of the months analyzed during wet years. This represents a four percent increase in flooding potential relative to the baseline scenario and would not result in a 10 percent or greater reduction in recreational opportunities associated with these facilities. The impact, therefore, is considered *less than significant*.

The only water supply contract identified for the Upper North Fork Feather River license is to supply one cfs to the Sutter-Butte Canal Company. This contract can be cancelled by mutual consent only. Because both parties' consent is required to cancel the water supply agreement, a new owner(s) could not unilaterally cancel the contract. The project is therefore considered to have no effect on water based recreational facilities and opportunities that might be dependant on the contract.

***Impacts Identified as Significant.*** Under the WaterMax Scenario, lake levels would exceed 4,490 feet asl elevation (the lake level associated with flooding of water-based recreation facilities) 52 percent more frequently during the period May through September than under the baseline scenario. The project (using the WaterMax Scenario) would have a *significant impact* on flooding of water-based recreational opportunities or facilities because the frequency of flooding would be substantially increased and would likely reduce recreational opportunities by more than 10 percent. As discussed above, under the PowerMax Scenario, the 4,490 feet asl elevation would be exceeded *less* frequently than baseline conditions and would have no adverse impact on water-based recreation and facilities.

The Fisheries section (Section 4.3) has identified a potentially significant impact associated with the fisheries on Lake Almanor. This impact on the fishery would substantially reduce the amount of water-based recreation on Lake Almanor. Implementation of mitigation measures in the fisheries section would reduce this to a *less than significant* impact.

### ***Butt Valley Reservoir***

***Impacts Identified as Less Than Significant.*** The land use analysis (see Section 4.1 of this EIR) indicates that the assumed development in the Butt Valley Reservoir area is 92 EDUs, and that there are 1,100 acres that have timber management potential. Approximately 75 percent of the land surrounding Butt Valley Reservoir is public land, managed by Plumas National Forest. Since the water-based recreational facilities (boat ramp) provided at Butt Valley Reservoir by Pacific Gas and Electric Company are required by the FERC license, access to these water-based recreational

facilities and opportunities would not be affected. Access issues associated with land development and potential for timber harvest are considered *less than significant* because there are appreciable alternative access opportunities on Plumas National Forest lands. Timber management could disrupt recreation periodically, chiefly as a nuisance creating noise and dust when timber harvest activities are being conducted. Because these effects would be temporary and localized, the overall effect on water-based recreation is considered to be *less than significant*.

The minimum lake level required for boat launch ramp operations and boating at Butt Valley Reservoir is 4,133 feet. Based on average hydrologic conditions over the 24-year period of record (1974 through 1998), the PowerMax Scenario and the baseline scenario would result in the same frequency that lake levels fall below the 4,133-foot level. During fall (September/October) for all three water-year types, lake elevations fall below the 4,133-foot level in 12 percent and 7 percent of the months analyzed, respectively, for the baseline and PowerMax Scenarios. During the spring (March/April) for all three types of water years, lake elevations fall below the 4,133-foot level in 7 percent of the months analyzed as compared to 8 percent under the baseline scenario. The PowerMax Scenario, therefore, would result in no impact on water-based recreational opportunities because the PowerMax Scenario would result in an actual improvement in conditions relative to the baseline.

Lake levels during the summer recreation season would not drop below the 4,133-foot level (the minimum lake level required for boat launch ramps operations and boating on Butt Valley Reservoir) for the baseline and are below this elevation 1 percent of the time for the WaterMax Scenario. The WaterMax Scenario would result in a *less than significant* impact on water-based recreational opportunities during the summer because it would not substantially reduce the amount of time that the reservoir would be useable for recreation during the peak season.

***Impacts Identified as Significant.*** During the spring (March/April), lake levels under the WaterMax Scenario fall below the 4,133-foot level 8 percent for the baseline condition and 19 percent for WaterMax Scenario. This is considered *significant impact* because it would result in a potential reduction in recreational opportunities that exceeds 10 percent.

#### ***North Fork Feather River Below Lake Almanor***

***Impacts Identified as Less Than Significant.*** North Fork of the Feather River between Lake Almanor and the Caribou powerhouse runs through public lands managed by Plumas National Forest. Some dispersed recreation may occur in the vicinity. A fenced trail around the Caribou powerhouse that provides access to the North Fork Feather River at this point could be affected if it were closed to public access in the area. However, given the small amount of recreational use on this portion of the North Fork Feather River, the impact would be *less than significant*.

***Impacts Identified as Significant.*** Watershed Lands along the North Fork Feather River provide access to fishing opportunities. Elimination of this access would occur as a result of the project.

This would result in a loss of access to water-based recreational opportunities along this reach of the river and is considered a *significant impact*.

### **Rock Creek-Cresta (FERC 1962)**

#### ***North Fork Feather River Below Belden Powerhouse***

***Impacts Identified as Less Than Significant.*** Fishing, swimming, and to a degree, whitewater rafting, opportunities exist on the North Fork Feather River between the Belden powerhouse and the Poe powerhouse. Access for these activities is primarily restricted to parking pullouts along State Highway 70. As these access points are a part of the state highway system, no effect on access to these recreational opportunities is anticipated from the project.

Watershed Lands associated with the Rock Creek-Cresta and Poe licenses do provide some access to fishing and swimming opportunities on the North Fork Feather River. Potential development in the Rock Creek-Cresta area is expected to be 19 EDUs, (Chapter 4.1: Land Use) and not likely to be significant to recreation resources. The land areas, as identified by the Land Use Section (Chapter 4.1), predict 16 EDUs in the Caribou to Belden land area, 240 EDUs in the Humbug Valley land area, and 31 EDUs in the Poe land area. However, access is often across rough and steep terrain, requiring four-wheel drive capabilities. Access to these areas, therefore, is currently limited. Further restrictions or reductions in access are, therefore, considered to be *less than significant*.

Whitewater rafting currently occurs in relatively low volumes because the construction of hydroelectric reservoirs and facilities has reduced the flows in streams and river channels. Most current whitewater boating occurs during spill events when flows exceed the capacity of hydroelectric facilities. Spills will likely continue at a similar frequency to the current situation but may be slightly reduced as the water is used to fill reservoirs that have been drawn down in anticipation of additional flows. Impacts on whitewater boating would be *less than significant* because of the relatively low level of use and because spills will likely continue at a slightly reduced frequency.

There are very sparse recreational facilities associated with recreational opportunities on the North Fork Feather River. The Shady Rest day use, picnic area, and rest area provided by Pacific Gas and Electric Company near Storrie is experiencing varying states of disrepair. The information kiosk and the bathrooms are in generally good repair. However, a portion of the parking area was destroyed during the high water event of January 1997. Traffic barriers have been placed along the edge of the broken asphalt to prevent cars from driving onto the sand and boulder area of the river bank. No picnic tables were in evidence on August 13, 2000. This is a FERC-licensed facility and FERC requires the license holder to maintain recreational facilities. With the sale of these facilities, it is assumed that the new owner would be held to the same FERC license facilities

maintenance requirements and that the current state license-related recreational facilities would either be maintained or improved. This is considered a *less than significant* impact.

***Impacts Identified as Significant.*** The Fisheries Section (section 4.4 of this EIR) identifies potentially significant impacts on fisheries on the Hamilton Branch between Mountain Meadows Reservoir and the Hamilton Branch Diversion. This impact on fisheries could reduce recreational fishing in an important fishing area. This impact on water-based recreational opportunities would be significant and can be mitigated by implementing mitigation measures in the Fisheries Section designed for this purpose.

The Fisheries Section also identified potentially significant impacts on fisheries on Rock Creek-Cresta. This impact on fisheries could reduce recreational fishing in an important fishing area. This impact on water-based recreational opportunities would be *significant* and can be mitigated by implementing mitigation measures in the Fisheries Section designed for this purpose.

#### **Bundle 7: Bucks Creek**

##### ***Bucks Creek (FERC 0619)***

Bucks Creek FERC-licensed facilities are popular with recreationists for camping, boating, swimming, fishing, and hiking. Along the east shore and south of the lake there are approximately 100 summer homes leased from Pacific Gas and Electric Company. Resort development offering boat ramps and docks, summer rentals, and camping also occur in the Bucks Lake license.

##### ***Bucks Lake***

***Impacts Identified as Less Than Significant.*** Land development potential for the Bucks Creek/Bucks Lake Watershed Land and FERC-Licensed Areas could result in 244 EDUs. 1,000 acres of these lands have timber management potential. The Pacific Gas and Electric Company campgrounds, boat ramps, and picnic areas, as well as access to these areas, are required by FERC. Impacts associated with land development or timber harvest are considered *less than significant* because development would have little effect on recreational resources in this bundle, and because the timber harvest would occur intermittently over a larger area, but this would have little effect on water-based recreational opportunities and facilities.

Lake levels during the summer recreation season would drop below the 5,135-foot level (the lowest level associated with proper operation of boat launch ramps and boats) about 13 percent of the months analyzed under baseline conditions, and about 10 percent of the months analyzed under the WaterMax Scenario. This impact would be most pronounced in dry years. This scenario would have no adverse impacts on water-based recreational opportunities or facilities because it represents an actual improvement for recreational opportunities on the lake. Since the lake is at 5,100-foot elevation, heavy use of the lake for swimming or water skiing purposes is not likely in the spring and fall seasons. During the spring (March/April) lake levels would fall below the 5,100-foot

elevation for 19 percent of the months analyzed under the baseline, and 8 percent of the months analyzed under the WaterMax Scenario. This again represents project-related improvement relative to the baseline scenario and, therefore, there would be *no impact* on water-based recreational opportunities in this season. During the fall (September/October) the lake levels would fall below the 5,100-foot elevation 47 percent of the months analyzed with the baseline and 23 percent of the months analyzed under the WaterMax Scenario. Again, there would be *no impact* on water-based recreational opportunities in this season.

There are no water supply agreements at Bucks Lake. There is no potential for the project to alter supply of water to recreational facilities. Therefore, the project is considered to have no effect.

Pacific Gas and Electric Company leases to individuals for summer homes along the east shore of Bucks Lake, and those to the south of the lake are due to expire at the end of 2005. The new owner of the project could decline to renew the leases. This would have no impact on recreational facilities because new occupants would then use the facilities.

Pacific Gas and Electric Company has an informal agreement that allows the local community to host triathlon events and sail boating regattas on Pacific Gas and Electric Company land and on Bucks Lake. A new owner(s) could end this activity. This would affect relatively few recreationists relative to the amount of recreational activity occurring in the area. This impact, therefore, is considered to be *less than significant* using the impact significance criteria presented in Section 4.6.5, above.

Access to water-based recreational opportunities across FERC-Licensed Areas is currently controlled by conditions of the FERC license. A new owner would be subject to the same condition under the license and, therefore, no significant changes in water-based recreation access across FERC-Licensed Areas is anticipated.

***Impacts Identified as Significant.*** The Fisheries Section (4.4) has identified a *significant impact* associated with the fisheries on Bucks Lake. This impact on the fishery would substantially reduce the amount of water-based recreation on Bucks Lake. Implementation of mitigation measures in the fisheries section would reduce this impact to a *less than significant* impact.

#### **Bundle 8: Butte Creek**

##### ***DeSabra-Centerville (FERC 0803), Lime Saddle (non-FERC), Coal Canyon (non-FERC)***

***Impacts Identified as Less Than Significant.*** A relatively low level of water-based recreation occurs in this bundle both within and outside of the FERC boundaries. Most water-based recreation activities for the inhabitants of this general region (Butte and Plumas Counties) occur at Lake Almanor, Butt Valley Reservoir, Bucks Lake, and Lake Oroville. For this reason, the project impact on water-based recreation resulting from any restriction of access related to the project would be *less than significant*.

All of the recreational facilities provided by Pacific Gas and Electric Company in this bundle are located within FERC boundaries. No substantial changes are expected in the operation of these recreational facilities. The project would have no effect. Chapter 4.1 (Land Use) identifies a development potential of 66 EDUs for the DeSabra-Centerville license, and 378 EDUs for Coal Canyon facilities. However, potential development is not expected to adversely affect recreational resources so this is considered a *less than significant* impact.

**Impacts Identified as Significant.** None.

### **Summary of Impact 6-1: Entire DeSabra Regional Bundle**

The DeSabra Regional Bundle would result in the following significant impacts:

- Denial of access to the Hamilton Branch non-FERC-licensed waters and to the North Fork Feather River would result in a substantial reduction in water-based recreation activities.
- WaterMax Scenario would result in a substantial reduction of water-based recreational opportunities on Lake Almanor due to reduced lake levels in the peak season.
- WaterMax Scenario would result in a substantial reduction of water-based recreational opportunities on Butt Valley Reservoir due to reduced lake levels in the peak season.
- Access to the North Fork of the Feather River (Section 19) for water-based recreation could be reduced by new owners.

#### **4.6.8.3 Impact 6-1: Drum Regional Bundle**

##### **Bundle 9: North Yuba River**

##### ***Narrows (FERC 1403)***

##### ***Englebright Reservoir***

**Impacts Identified as Less Than Significant.** Under project conditions, effects on water-based recreational opportunities and facilities as a result of potential changes in land use development, timber harvest, mineral extraction, allocations of water supply or hydrologic operation would be *less than significant*. As indicated by the Land Use/Planning chapter of this EIR (Section 4.1), the potential for change in land use development, timber harvest, and mining is not expected to have a significant impact to recreational resources. Potential development in this bundle could result in 3 EDUs. An EDU is an “Equivalent Dwelling Unit,” which equals one dwelling unit or unit of any other use, including commercial, recreation resort, or other. Lands where land use development, timber harvest and mining could take place are located below the reservoir and would, therefore, have no effect on water-based recreational opportunities and facilities.

Based on the average hydrologic conditions over the 24-year period of record, the frequency of lake elevations dropping below the 500-foot elevation (the bottom elevation of the lowest of the two boat ramps at Lake Englebright) was not exceeded for spring, summer or fall seasons for the baseline,

PowerMax and WaterMax scenarios. Therefore, no significant impacts would occur as a result of the proposed project.

***Impacts Identified as Significant.*** None.

#### ***Yuba River from Englebright Dam to Marysville***

***Impacts Identified as Less Than Significant.*** Project effects on water-based recreational opportunities and facilities as a result of potential changes in hydrologic operation, land use development, timber harvest, mineral extraction, or allocations of water supply would be *less than significant* for the following reasons. There are 55 acres of land just below the Englebright Reservoir along the Yuba River where land use development, timber harvest and mining could take place. As indicated Chapter 4.1 (Land Use Section) of this EIR, the potential for change in land use development, timber harvest, and mining is not expected to have a significant impact to recreational resources. With a relatively small amount of land and little potential for development (3 EDUs as described above), it is expected that the proposed project would have no effect on water-based recreational opportunities and facilities along the Yuba River.

***Impacts Identified as Significant.*** Based on a minimum flow of 700 cfs, at which flows below this rate diminish the angling experience, hydrology data show that for the spring, summer, and fall seasons under the baseline, PowerMax, and WaterMax Scenarios, change, if any, would be negligible. Since the resource is used in the fall and winter months (October through February), hydrology data were analyzed for these months. For January, February and March, no change over baseline conditions occurred.

However, for late fall/early winter months of October, November and December, during which there are salmon runs, there would be a 10 percent increase in the frequency where flows are below 700 cfs (from 43 percent of months analyzed under baseline conditions, to 53 percent of the months for PowerMax and WaterMax Scenarios). For dry years this condition could be further exacerbated. For all three of the scenarios this would be considered a *significant impact* on angling.

#### **Bundle 10: Potter Valley**

##### ***Potter Valley (FERC 0077)***

##### ***Lake Pillsbury***

***Impacts Identified as Less Than Significant.*** Water-based recreation at this facility is dependent on both reservoir operations. The impacts of water surface elevation changes to reservoir recreation were assessed using a higher elevation range of 1815 feet and greater that includes all recreational opportunities from full pool through to the point just before losing the functional use of the highest boat ramp, and a lower water surface elevation range of 1814.9-1811.8 feet which

includes the continued loss of recreation uses through to the point just before losing the functional use of the lowest boat ramp.

An evaluation of the end-of-month water surface elevation modeling for higher elevation range recreational opportunities and lower elevation range recreational opportunities indicates that the baseline, PowerMax and WaterMax Scenarios have no effect on reservoir recreational opportunities in any of the use seasons.

Access to existing recreational facilities at Lake Pillsbury could not be substantially altered under the project due to changes in ownership of FERC Project Lands and Watershed Lands. In addition, FERC license conditions for lands and facilities in and around the lake would prevent substantial changes in current practices that could affect recreational use at the lake. The remoteness of Watershed Lands associated with Lake Pillsbury from the lake would preclude any effects on recreational opportunities at the lake associated with potential changes in use of those lands.

Likewise, the Land Use Section (Chapter 4.1) has identified potential for only 188 EDUs. Development of this magnitude is not expected to have a significant impact on recreational resources.

***Impacts Identified as Significant.*** None.

#### ***Van Arsdale Reservoir***

***Impacts Identified as Less Than Significant.*** Water-based recreation at Van Arsdale Reservoir is limited, and it is dependent on reservoir operations. Chapter 4.3, however, identifies no substantial change in reservoir operations at Van Arsdale under PowerMax relative to baseline conditions (WaterMax Scenario was not modeled because it does not vary significantly from baseline conditions). Therefore, project hydrologic impacts on water-based recreation would be *less than significant*. In addition, land use, timber harvest, mineral extraction, and consumptive allocated water are not expected to affect reservoir operations, therefore no impacts are expected from these sources.

Similarly, the Land Use Section (Chapter 4.1) has identified only 13 EDUs in the land area. This is not expected to have a significant impact on recreation.

***Impacts Identified as Significant.*** Access to Van Arsdale Reservoir recreational opportunities across Pacific Gas and Electric Company Watershed Lands is currently unconstrained. This access could be affected if a new owner aggressively implements access restrictions on these lands. Such restrictions could have a significant impact on water-based recreational opportunities at Van Arsdale Reservoir. This is considered a *significant impact* requiring mitigation.

***Eel River and Lake Pillsbury to Van Arsdale Dam***

***Impacts Identified as Less Than Significant.*** Two key elements related to the project dictate the quality and level of water-based recreation on the river. These are: 1) hydrologic conditions, and 2) the availability of public access on FERC-Licensed Areas and Watershed Lands. Potential changes in area land use, timber harvest, mineral extraction, or consumptive water allocation brought about by the project would not appreciably affect river hydrology or access. These potential changes, therefore, are found to have a *less than significant* impact on water-based recreation on the river.

***Impacts Identified as Significant.*** The impacts of flow changes to whitewater boaters were assessed using a lower flow range of 500-1000 cfs which mainly covers kayaking and then at less than optimum flow conditions (1500 cfs), and a higher range of 1000-2500 cfs that includes the main use range of kayakers and all the rafting. These flow ranges do not consider the very low flows when uses are mostly casual floaters in the downstream portion of the reach.

An evaluation of the monthly average flow modeling for lower flow range boating opportunities indicates that the WaterMax Scenario would increase opportunities by 40 percent in the early season and by 100 percent in the summer season, with the late season unchanged, relative to baseline conditions. WaterMax Scenario has no effect on lower flow range boating opportunities.

An evaluation for the higher flow range boating opportunities indicates that the PowerMax Scenario would decrease opportunities by 37 percent in the early season with no effects in either the summer or late seasons. The WaterMax Scenario has no effect on higher flow range boating opportunities.

The loss of 37 percent of the boating opportunities in the early season under the PowerMax Scenario is a *significant impact* requiring mitigation.

Access to the Eel River across Pacific Gas and Electric Company Watershed Lands is currently unconstrained. This access could be affected if a new owner aggressively implements access restrictions on these lands. Such restrictions could have a significant impact on water-based recreational opportunities on the Eel River near these lands. This is considered a *significant impact* requiring mitigation.

***Eel River and Downstream of Cape Horn Dam - Cape Horn Dam to Outlet Creek***

***Impacts Identified as Less Than Significant.*** Two key elements related to the project dictate the quality and level of water-based recreation on the river. These are: 1) hydrologic conditions, and 2) the availability of public access on FERC-Licensed Areas and Watershed Lands. Potential changes in area land use, timber harvest, mineral extraction, or consumptive water allocation brought about by the project would not appreciably affect river hydrology or access. These

potential changes, therefore, are found to have a *less than significant* impact on water-based recreation on the river.

Access to water-based recreational opportunities across FERC-Licensed Areas is currently controlled by conditions of the FERC license. A new owner would be subject to the same conditions under the project and, therefore, no significant changes in water-based recreation access across FERC-Licensed Areas are anticipated.

An evaluation of the monthly average flow modeling for lower flow range boating opportunities indicates that the PowerMax Scenario would decrease opportunities by 33 percent in the early season and would increase opportunities by 100 percent in the summer season with no effect in the late season (relative to baseline conditions). The WaterMax Scenario has no effect on lower flow range boating opportunities.

An evaluation for the higher flow range boating opportunities indicates the PowerMax Scenario would increase opportunities by 67 percent in the early season with no effects in either the summer or late seasons. The WaterMax Scenario would have no effect on higher flow range boating opportunities.

The loss of 33 percent of the low flow range boating opportunities and the gain of 67 percent in the higher flow range in the early season under PowerMax Scenario is a *less than significant* impact.

***Impacts Identified as Significant.*** The impacts of flow changes to whitewater boaters were assessed by combining the flow ranges noted for the five separate reaches used for whitewater boating into a single set that best balances the discrepancies and best represents a “combined flow-need spectrum.” This is described previously in this chapter. Two flow ranges were used: 300 cfs provides for the lowest of the minimum listed flows as well as all the other minimums and 1000 cfs is the break between the lower flow range and the upper flow on all the runs except the Alderpoint and downstream run. 1,000 cfs at the Alderpoint and downstream run does represent improved conditions, but changes in user levels are not expected.

Access to the Eel River (downstream of Cape Horn Dam) across Watershed Lands is currently unconstrained. This access could be affected if a new owner aggressively implements access restrictions on these lands. Such restrictions could have a significant impact on water-based recreational opportunities on the Eel River near these lands. This is considered a *significant impact* requiring mitigation.

#### ***East Branch of the Russian River***

***Impacts Identified as Less Than Significant.*** Weekend-day uses of this stream typically do not exceed 30 users mostly engaged in either angling or riparian and water-contact activities associated with local teenagers. Floating uses may only range to 2-5 users on weekends when conditions are favorable. Kayaking uses are estimated at about 40 users at the annual slalom events and about

250-300 boaters annually. There are also about 100-150 casual floaters annually (T. Derry, 2000). Though flow conditions under both PowerMax and WaterMax scenarios will alter flows in the East Branch of the Russian River, the level of use on the stream is not considered significant based on the screening criteria presented in this section. The impact of flow changes in the East Branch, therefore, is considered *less than significant*.

**Impacts Identified as Significant.** None.

### **Bundle 11: South Yuba River**

#### ***Drum-Spaulding (FERC 2310)***

#### ***Upper and Lower Feeley Lakes, Lindsey Lakes, Rock Lakes and Culbertson Lake, also known as Grouse Lakes Vehicle Control Area***

**Impacts Identified as Less Than Significant.** Individually, these lakes are relatively small (the largest is Culbertson Lake at 70 acres) and do not have high visitation, with the exception of Lower Feeley Lake where more than 10,000 visitor days occur annually. These lakes as a group are important to the region.

Land development potential for the Grouse Lakes Area is anticipated at 5 EDUs, and little potential for change in timber harvest and no potential for mining (see Section 4.1: Land Use) are anticipated. Because of the intensity of this type of development, the proposed project is expected to have no effect on water-based recreation or facilities for the area.

The primary water-based recreation and facilities at these lakes is angling but some car-top launching of boats occurs at Lower Feeley Lake and Lower Lindsey Lake. There are no formal boat launches or other water dependent facilities that would be affected. Pacific Gas and Electric Company and the USFS have an informal agreement, which may not be transferred, to keep the level of Grouse Lakes high until after Labor Day to accommodate recreational use and enhance the aesthetic values of the area (USFS, 2000t).

These lakes have not been modeled for the PowerMax and WaterMax scenarios. These lakes were not modeled because their operational flexibility is limited by the types of dams and hydrologic control facilities. Change in use of these lakes with the proposed project is anticipated to be negligible and would therefore have no effect on recreational resources.

**Impacts Identified as Significant.** Access to the Pacific Gas and Electric Company lakes within the Grouse Lakes Vehicle Control Area across Watershed Lands is currently unconstrained. This access could be affected if a new owner aggressively implements access restrictions on these lands. Such restrictions could have a significant impact on water-based recreational opportunities on the lakes near these lands. This is considered a *significant impact* requiring mitigation.

Access to water-based recreation via FERC-Licensed Areas would be maintained with the project because such access is a condition under the FERC license. However, in some cases (Rock Lake for example [see Figure 4.6-10]) the FERC-Licensed Areas are entirely surrounded by Watershed Lands. This raises the issue of whether future restrictions to access on these Watershed Lands could reduce or eliminate public access to FERC-Licensed Areas.

It is possible, if not likely, that FERC license conditions requiring public access to recreation would preclude any new facilities owner to implement substantial Watershed Land access restrictions when such restrictions would preclude access to FERC Licensed Areas. However, because the potential exists for such restrictions to occur, this EIR assumes that access to FERC-Licensed Areas through Watershed Lands could be restricted under the project.

### ***Lake Spaulding***

***Impacts Identified as Less Than Significant.*** Under the proposed project, changes in land use, timber harvest, and mining would not be expected to have an effect on water-based recreation. The area has a development potential of 2,396 EDUs; however, it is not expected to significantly affect access to, or the quality of, water-based recreational opportunities at Lake Spaulding. These types of changes would not be expected to restrict boating or fishing access to the lake. Boating, the boat ramp and shore fishing recreational opportunities and facilities would continue under FERC license. Therefore, no effect with respect to water-based recreational opportunities or facilities would be expected.

Pacific Gas and Electric Company and Nevada Irrigation District (NID) cooperatively operate their power and water supply systems on the Bear River and Yuba River, with the intention of ensuring that each party receives the benefits of their individual water rights. Pacific Gas and Electric Company has indicated it will retain the 1963 contract with NID and will require any new owner of the Drum-Spaulding project to enter into an agreement with Pacific Gas and Electric Company to ensure the water supply obligations and coordinated operations with NID are met. Therefore, changes in the allocation of water under the project would be similar to current conditions and would have no effect on water-based recreational opportunities and facilities relative to consumptive water supply.

***Impacts Identified as Significant.*** Significant impacts would occur during the early season for PowerMax and WaterMax scenarios relative to the baseline. This is based on the frequency of lake elevations dropping below the 120-foot gauge elevation that corresponds to the bottom of the Lake Spaulding boat ramp. For each scenario, the increase over baseline conditions would be 13 percent. For the early season PowerMax and WaterMax scenarios, the increase would be from a baseline of 25 percent to 38 percent of months where the elevation of the lake would be below the bottom of the boat ramp. For the late season, the increase would be from a baseline condition of 44 percent to 57 percent of months where the elevation of the lake would be below the bottom of the boat ramp. This would be considered a *significant impact* on water-based recreational resources because

this increase could result in a decrease in recreational opportunities of greater than 10 percent. For the summer season, effects would be negligible or nonexistent.

#### ***South Yuba River, Kidd Creek to Lake Spaulding***

***Impacts Identified as Less Than Significant.*** No FERC-Licensed Areas or Watershed Lands are located along this section of the South Yuba River. Development in this area, as stated by the Land Use Section (4.1), is 38 EDUs. This is not expected to impact recreational resources. Therefore, no effects on water-based recreational opportunities or facilities would occur as a result of project-caused changes in land use, timber harvest, or mining.

***Impacts Identified as Significant.*** Pacific Gas and Electric Company has an informal agreement with CDFG to maintain a 5 cfs flow in Kidd Creek at Cisco. A new owner could potentially operate Kidd Lake and Peak Lakes such that this flow could drop below the 5 cfs minimum. This section of stream was not modeled by the EIR and therefore the extent of the potential loss of flow is unknown. However, it is conceivable that the 5 cfs flow could be reduced and could diminish water-based recreation along this heavily used section of river. Therefore this is considered a *significant impact*.

#### ***South Yuba River, Spaulding Dam to Canyon Creek***

***Impacts Identified as Less Than Significant.*** Hydrologic operation and water allocation would not affect water-based recreational opportunities or facilities. Flows in this section of river are mainly used for swimming, angling, and casual floating. Spaulding Powerhouse No. 1 releases water into this section of river. It is indicated by Pacific Gas and Electric Company that the operational flexibility of the powerhouse is low due to downstream coordination with other powerhouses and for water supply that relies on water in the South Yuba Canal. However, with the assumption that the operation of this canal would be about the same with the project, it is inferred that the South Yuba River would also receive about the same flows with the project.

Changes in land use, timber harvest, and mining activities could result in restricted access to portions of the river above Lang Crossing and for a small portion below Lang crossing. The potential use of these lands for private homes or resource extraction could diminish the amount of river currently available for recreation. These effects, however, would be temporary and highly localized and are considered to be *less than significant*. There are no facilities located on the river and, therefore, none would be affected by changes with the project.

***Impacts Identified as Significant.*** A primary change under project conditions would be in reduced access to river areas between Lang Crossing and Lake Spaulding and a portion of river below Lang Crossing. In the area of Lang Crossing, there are about 10 informal car-campsites and another 10 informal walk-in camps. Angling and water contact recreation are popular in this area. Therefore, this would be considered a *significant impact*.

***South Yuba River, Canyon Creek to Highway 49***

***Impacts Identified as Less Than Significant.*** Flows in this section of the South Yuba River are mainly used for swimming, angling, and white-water boating. Spaulding Powerhouse No. 1 releases water into this section of river. It is indicated by Pacific Gas and Electric Company that the operational flexibility of the powerhouse is low due to downstream coordination with other powerhouses and for water supply that relies on water in the South Yuba Canal. However, with the assumption that the operation of this canal would be about the same with the project, it is inferred that the South Yuba River would also receive about the same flows with the project. Recreational opportunities and facilities would not be affected by the project.

No FERC-Licensed Areas or Watershed Lands are located along this section of river and, therefore, no effects on water-based recreational opportunities or facilities are expected as a result of changes in land use, timber harvest, or mining on these properties.

***Impacts Identified as Significant.*** None.

***South Yuba River, Highway 49 to Englebright Reservoir***

***Impacts Identified as Less Than Significant.*** Flows in this section of the South Yuba are mainly used for swimming, angling, and white water boating. Spaulding Powerhouse No. 1 releases water into this section of river. It is indicated by Pacific Gas and Electric Company that the operational flexibility of the powerhouse is low due to downstream coordination with other powerhouses and for water supply that relies on water in the South Yuba Canal. However, with the assumption that the operation of this canal would be about the same with the proposed project, it is inferred that the South Yuba River would also receive about the same flows with the proposed project. Recreational opportunities and facilities would not be affected by the project.

No FERC-Licensed Areas or Watershed Lands are located along this section of river and, therefore, no effects on water-based recreational opportunities or facilities are expected with the proposed project.

***Impacts Identified as Significant.*** None.

***South Yuba River and the Entire Reach From Spaulding Dam to Englebright Reservoir***

The impacts of flow changes to river recreation were assessed using a flow range for water contact recreation and two flow ranges for whitewater boating. The range of acceptable water contact recreation is 10-200 cfs, which accommodates hydraulic and water temperature issues and unmodeled inflows from major tributaries in and above the main recreation use reach. The whitewater recreation flows include a lower flow range of 700-1200 cfs which mainly covers kayaking, minimal use of the Washington-Edwards Run (due to run length), and less than optimum flow conditions (generally 1500 cfs), and a higher range of 1200-2500 cfs that includes the main

use range of kayakers and rafting, unconstrained use of the Washington-Edwards Run, and optimum flows (generally 1500 cfs).

The PowerMax Scenario would decrease opportunities by 10 percent in the summer season with the early and late seasons unchanged. WaterMax Scenario would increase opportunities by 7 percent in the early season and decrease opportunities by 21 percent in the summer season and by 5 percent in the late season.

An evaluation of the lower whitewater boating flow range opportunities indicates that the baseline and PowerMax Scenario would increase opportunities by 100 percent in the early season and by 25 percent in the summer season with the late season unchanged. WaterMax Scenario would increase opportunities by 100 percent in the early season and decrease opportunities by 100 percent in the summer season with the late season unchanged.

An evaluation for the higher flow range whitewater boating opportunities indicates that the baseline, PowerMax, and WaterMax Scenarios have no effect on higher flow range boating opportunities.

The loss of 3 to 21 percent of the water contact recreational opportunities in the summer season is due to an increasing frequency of flows below 10 cfs. The amount of reduced recreational opportunities is considered *significant* and mitigation measures are proposed.

The loss of 100 percent of the summer season low flow range whitewater boating opportunities under the WaterMax Scenario is considered *significant* and mitigation actions are proposed. There were no identified impacts in the higher whitewater boating flow range.

### ***Fordyce Creek***

***Impacts Identified as Significant.*** The impacts of flow changes to whitewater boaters were assessed using a lower flow range of 125-250 cfs which mainly covers inflatable kayak use, and a higher range of 250-700 cfs that includes the main use range of kayakers and rafting and includes the reported optimum flow for kayaking of about 500-600 cfs. Due to high elevations and access difficulties due to snow, only the summer and late seasons were analyzed.

An evaluation of the monthly average flow modeling for lower flow range boating opportunities indicates the PowerMax Scenario would increase opportunities by 14 percent in the summer season and decrease them by 100 percent in the late season. The WaterMax Scenario would increase opportunities by 19 percent in the summer season and by 150 percent in the late season.

An evaluation for the higher flow range boating opportunities indicates that the PowerMax Scenario would decrease opportunities by 10 percent in the summer season and would increase the opportunities by 57 percent in the late season. The WaterMax Scenario would decrease opportunities by 5 percent in the summer season and by 14 percent in the late season.

The loss of 100 percent of the low flow boating opportunities in the late season under PowerMax Scenario is a *significant impact*. Mitigation actions are proposed. The loss of 5 to 10 percent of the high flow boating opportunities in the summer season under various alternatives and the loss of 14 percent of the high flow opportunities in the late season under WaterMax Scenario are *significant impacts*. Mitigation actions are proposed.

***Other Reservoirs and Streams.*** Reservoirs that are important recreationally, but would not be expected to change with the project, include Fuller Lake and Halsey Forebay (Halsey Forebay has potential for 357 EDUs). These forebays are used primarily for fishing. The hydrologic operation of these forebays maintains them full for use directly to the powerhouses. Accordingly, the operational flexibility for their respective powerhouses is low. With the proposed project, it would not be expected that these operations would be used in such a way that would diminish the fishing opportunities and the associated water-based facilities, such as the boat ramp at Fuller Lake.

The following reservoirs are less important recreational resources, and potential developmental hydrologic changes (see Section 4.2: Hydrology) under the proposed project would not be considered significant to water-based recreational opportunities or facilities: Rucker Lake, Blue Lake, Upper Peak Lake, Lower Peak Lake, White Rock Lake, Lake Sterling, Fordyce Lake, and Meadow Lake (7 EDUs), Lake Valley Reservoir (329 EDUs), Kelly Lake, Drum Forebay, Drum Afterbay, Alta Forebay, Deer Creek Forebay, Dutch Flat area (517 EDUs), Rollins Reservoir area (12 EDUs), Halsey Afterbay, Rock Creek Reservoir (198 EDUs), Wise Forebay, and Folsom Lake (4 EDUs).

#### **Bundle 12: Chili Bar Bundle**

##### ***Chili Bar (FERC 2155)***

***Impacts Identified As Less Than Significant.*** Under present Pacific Gas and Electric Company land management practices, there are no water-based recreational opportunities or facilities at Chili Bar Reservoir or on Pacific Gas and Electric Company lands associated with the project, so there are no anticipated impacts to existing recreational opportunities and facilities due to changes in land use, timber harvest, or mineral extraction. No mitigation actions are proposed for these issues.

The present lack of access to the Chili Bar Reservoir across Pacific Gas and Electric Company land precludes the effective use of the Slab Creek Run for Class V boating that represents a foregone recreation opportunity. A future new landowner may act to permanently close access to the reservoir at this location that could result in the loss of future opportunities for whitewater boating mitigation associated with SMUD's near-future FERC relicensing process. However, neither existing recreational opportunities nor existing facilities would be adversely affected by the potential future improvement or the potential permanent foreclosure. Therefore, the project would result in no impact on existing water-based recreational opportunities at Slab Creek Run. No mitigation actions are proposed for this issue.

Due to the relatively small size of the Chili Bar Reservoir, the reservoir is not operated for consumptive water storage and delivery. The project's impact on consumptive water supply deliveries for recreational use, therefore, would be *less than significant*.

The Chili Bar Bundle contains 35 acres of Watershed Lands with a development potential of 4 EDUs. At this level, no impacts on existing water-based recreation would occur due to changes in land use, timber harvest, mineral extraction, or consumptive water allocation on Watershed Lands.

**Impacts Identified as Significant.** None.

***Introduction to South Fork American River Recreation Impact Analysis.*** Possible changed hydroelectric operations due to the project could adversely affect whitewater recreation on the South Fork American River. A three-step process was undertaken to assess the character and relative magnitude of this effect.

1. Potential future hour-of-day flow patterns for a variety of water year types were developed for typical days during the summer boating season under the assumption that the informal agreement on boating flows was not in place.
2. The future hourly flow patterns were evaluated to determine their potential disruption to present whitewater user patterns using the flow-pattern parameters developed in the setting section of this chapter.
3. The potential user pattern disruption estimates were combined with the existing monthly whitewater use levels to estimate the potential future use levels that may occur with the future project flow patterns.

To carry out the analysis described above, specific hour-by-hour information was extracted from the power system analysis to provide the basis for estimating the potential changes in powerhouse flows that may occur in the future and the potential implications of these flows for whitewater recreation uses.

***Estimating the Future Flow Pattern.*** The project under the PowerMax and WaterMax Scenario was modeled based on the assumption that a new owner may not honor the informal and non-binding agreement between Pacific Gas and Electric Company and SMUD to communicate on the effort to provide the boating flow patterns identified in the 1992 agreement and to notify the whitewater boating community when those patterns would not be achieved. Instead, the new owner may operate under the PowerMax Scenario to maximize revenues without regard to non-binding agreements. With such a management objective, the new owners generally would operate to meet summertime peak loads that occur in the afternoon and early evening. Thus releases would occur later in the day and at substantially lower levels on weekend days than they do at present under the existing non-binding agreement.

**General Conclusions.** The impact analysis for South Fork recreation impacts generally concludes that future project flow patterns could have a significant impact on whitewater recreation. For the commercial boating operations, the present summer-long commercial use season will be reduced to primarily a spring runoff season use pattern. For the non-commercial sector, there will be a significant reduction in the number of boatable days in the summer season and a reduction in the recreation value of those usable flows that do occur. The estimated future potential summer season use levels under project conditions are on the order of 20-30 percent of baseline uses, and overall annual uses are estimated at about 50 percent of present levels.

**Detailed Discussion of Whitewater Recreation Impact.** It can be reasonably concluded that the potential future operations of the Chili Bar license by new owners would lead to substantial displacement of the commercial and non-commercial whitewater recreation uses of the South Fork of the American River within the context of the existing use pattern. This is not to say that all whitewater boating would be lost. However, whitewater recreation, which is ongoing under future project operational conditions, would have a significantly different use pattern and the use levels would be substantially lower.

During the winter and spring season and on into June, it is expected that flow conditions for the license would be the same as have been historically seen. Flows will be a function of runoff circumstances and storage increases in the headwaters of SMUD system reservoirs. It is assumed here that starting in mid to late June and continuing through September, the daily flow regime of the powerhouse would dictate the boating flow conditions.

For commercial uses, the results of this assessment indicate that operations can be active from late June through July on weekdays on the Upper Run in 88 percent of the water years and on the Lower Run in 33 percent of the years. Lower Run operations can be extended from late June through July on weekend-days during only about 12 percent of the water years. Commercial operations can go through August on weekdays on the Upper Run in about 49 percent of the water years while in 12 percent of the water years weekday operations would also be possible on the Lower Run and weekend-day operations would be possible on the Upper Run.

These conditions could result in substantial changes to the commercial rafting sector. First, spring and early summer seasons will likely remain unchanged and the same number of companies and users could be expected at least through the third week of June. Second, although flow patterns indicate that useable conditions will extend into portions of the main summer season, the additional days are mostly weekdays and some marginal weekend days. When flow patterns are close to the threshold criteria for suitability, the issue of flow and flow prediction reliability becomes important. Often in these extended season days, the typical day-type flow patterns indicate that reliability may be a concern for commercial operational viability. This issue is not addressed so the foregoing results could be considered as potentially optimistic for some of the day-type/water year combinations.

While non-commercial boaters are more affected by congestion and reduced hydraulic values than commercial operations, they can be more adaptive and resilient to irregular boating flow conditions than the client-dependant commercial boating sector. This resilience and ability to take advantage of adequate but unreliable or unpredictable flows depends on adequate forewarning by credible sources. If adequate knowledge is in hand, non-commercial boaters can take advantage of erratic flow patterns that commercial operations cannot accommodate. For non-commercial uses the results of this assessment indicate that in most water years (88 percent) weekday boating can be extended from late June through July on the Upper and Lower Runs but the use levels on the Lower Run would be much reduced. On July weekend days, full boating opportunities would occur in about 12 percent of the water years while in 21 percent of the water years weekend-day boating would be limited to the Upper Run. In August, roughly the same weekday boating conditions would exist while weekend-day uses would be essentially limited to the Upper Run and be available in only about 12 percent of the water years.

The results presented above should be conditioned by two aspects of the particular water years selected. First, the wettest water year (1983) was about 227 percent of the 1975-1998 average while the second wettest (1995) was only 204 percent of average. In reviewing other wet water years of the 1975-98 period, the annual flow of 1983 stands as a distinct outlier well separated from the trends of slightly less wet water years. Therefore assuming the wettest water year of the record is representative of 12 percent of the water years probably overstates the occurrence of adequate boating flow patterns summarized above. Second, the provision of adequate boating flow patterns is not only a function of total annual flow but also the particular seasonal flow pattern of any particular water year. Due to idiosyncratic seasonal runoff issues, the slightly wet 1975 water year resulted in more frequent adequate boatable flow patterns than did wetter years. Taking a long-term perspective, this also probably results in overstating the occurrence of adequate boating flow patterns summarized above.

The potential project-related changes on Chili Bar operations are estimated to result in the long-term displacement of about 53 percent of the main-season whitewater uses. In the summer months, commercial operations would be essentially eliminated or limited to marginal weekday operations and non-commercial boating would be significantly curtailed and limited to marginal circumstances such as poor time of day activities and marginal flow magnitude. While the displacement of non-commercial use may be comparable to the commercial sector, the boating quality components of the experience are expected to be significantly diminished. Under these adverse conditions, the non-commercial uses may be maintained as high as about 33 percent of present levels mainly because of a lack of convenient, comparable resource value alternatives.

The resulting magnitudes of estimated displacement should be considered conservative. A review of the qualifications on the application of the selected water years to long term hydrologic conditions, presented above, imply that the selected water years which provided the adequate main season boating flow pattern conditions actually may not occur as often as assumed. The estimated

commercial displacement does not include the consideration of day-to-day flow reliability nor the pre-season flow patterns knowledge; both factors are important to the occurrence of actual commercial operations in years with marginal potential daily flow patterns. The estimated non-commercial displacement does not address the issue of adequate pre-trip notification of boatable flow patterns. In both the commercial and non-commercial sectors the estimated displacement assumes reliable flow patterns, adequate pre-season and pre-trip flow pattern notification which would allow both sectors to take full advantage of any available adequate flow pattern regardless of reliability and frequency. The hydrologic information used in this analysis, and its formulation, does not allow these factors to be adequately interjected. When considering all aspects of analytic conservatism, the possible rate of summer month displacement could be in the range of 90+ percent for the commercial sector and 80-90 percent for the non-commercial sector.

The potential displacement of whitewater recreation could increase whitewater use activity on other regional resources. However, most of those resources available are largely spring runoff rivers, and spring is not the season in which South Fork American River displacement will occur. The Middle Fork of the American River and the Tuolumne River both have hydro-licenses in headwater areas which modify spring and summer flows on whitewater sections, which in turn provide for extended seasonal boating. Both of these rivers are under active whitewater management with commercial outfitter use limits. Non-commercial uses are under a permit program on the Tuolumne but not the Middle Fork of the American River.

The Middle Fork of the American River is typically a summer-long resource with usable flows into September. It is a 15 mile Class III/IV run, and due to its length is used mostly as a one day resource but there are occasional multi-day trips. There are 25 commercial companies under the use permit system. The system is allocation-based and is presently controlling starts on weekend days. The limit is 10 commercial trip starts per day with a maximum of 30 clients and six boats per trip. That is a total of 300 commercial clients per weekend-day. Recently, this weekend-day allocation has been running at 100 percent trip allocation and at about 80 percent client capacity (most commercial operations using their trip slot allocation but often running at less than the 30 client limit) and the weekdays have been at about 30 percent of the client allocation limit (Folsom State Park, 2000). If it is assumed that it is possible to completely fill every slot then there would be space for about 60 more clients per weekend day and for 210 more clients per weekday. When applied to the 100 day season in which commercial use displacement is expected on the South Fork of the American River (late June through September), there would be an excess capacity of about 1,740 users on the 29 weekend days and about 12,810 users on the 61 weekdays; a total of 14,550 in excess capacity (see Table 4.6-34 below).

**Table 4.6-34 Estimated Main-Season Reductions in Whitewater Recreation Use Levels Under New Project Operational Conditions**

	Present Ave. Use (User-Days)	Percent of Seasonal Use	Est. Project Ave. Use (User-Days)	Est. % Reduction In Use
<b>Commercial :</b>				
April	1,390	1.6	1,390	0
May	6,020	7.1	6,020	0
June	15,630	18.5	13,100	16.2
July	24,340	28.8	8,540	64.9
August	28,130	33.3	5,780	79.4
September	8,970	10.6	1,850	79.4
Subtotal	84,480	99.9	36,680	56.6
<b>Non-Commercial :</b>				
April	1,770	4.5	1,770	0
May	4,090	10.5	4,090	0
June	6,460	16.6	5,590	14.4
July	10,140	26.0	4,320	57.4
August	10,770	27.7	3,540	67.2
September	5,720	14.7	1,880	67.2
Subtotal	38,950	100.0	21,190	45.6
Total Whitewater Recreation	123,430	100.0	57,870	53.1

Source: El Dorado Department of Parks and Recreation

These numbers indicate that perhaps as many as 14,550 of the displaced South Fork of the American River commercial clients could find alternative space on the Middle Fork of the American River. This would be about 30 percent of the 47,800 commercial users displaced on the South Fork. Based on present trip patterns on the Middle Fork, however, new trips could occur only on weekdays as the weekend days are fully booked with commercial trip starts.

Some displaced non-commercial users may also find the Middle Fork American River a viable alternative. However, due to greater trip logistical requirements, overall lower hydraulic intensity (in spite of an equal or higher whitewater classification), and a much longer activity day, it is most likely that the actual displaced non-commercial users of this resource will be very small. The rate at which displaced boaters may use the Middle Fork would likely be much lower than the commercial rate; perhaps 5 percent or about 890 of the 17,760 non-commercial boaters displaced.

The Tuolumne River also has boatable flows late into the summer season in most years. It is a 18 mile Class IV resource with 1 to 3-day trip options. It is under a permit system for both commercial and non-commercial uses. There are eight commercial operators who share two trip starts per day which are each limited to 20 clients and six rafts. It has been reported that over the recent seasons during the main summer season, weekend days have been running at full trip and client allocation and weekdays are running at about 70 percent client allocation (Sierra Mac River Tours, 2000). This provides for potential space for about 12 clients per weekday. When applied to the 100-day season in which commercial use displacement is expected on the South Fork American River (late June through September), there would be an excess capacity of about 730 users on 61 weekdays. This would be about 1.5 percent of the 47,800 commercial users displaced on the South Fork.

Some displaced non-commercial users may use the Tuolumne River as an alternative. However, due to greater trip logistical requirements, higher hydraulic intensity, a much longer activity day and the possibility of 2-day trips, and a non-commercial allocation/permit system, it is most likely that the actual displaced non-commercial users of this resource would be very small. The rate at which displaced boaters may use the Tuolumne River as an alternative is assumed to be 5 percent or about 890 of the 17,760 non-commercial boaters displaced. These uses would be almost exclusively on weekdays.

These estimated levels of available space are conditioned on the present power release patterns of the hydroelectric facilities on those rivers. Should the release patterns shift to conform to daily electrical load patterns the estimated available space may be reduced. If streamflow patterns on these resources are assumed to remain unchanged, the expected change in water-based recreation, from a whitewater recreation perspective, is discussed below.

The main boating season for the commercial rafting sector will be displaced from the resource. Only on occasional years will there be adequate boatable flow conditions to extend commercial rafting into July and portions of August. This represents a loss of about 47,800 user-days on the South Fork American River; when considering local alternatives, this is a loss of about 33,250 user-days in the area, and when considering regional alternatives, this is a loss of about 32,520 user-days from the commercial sector.

For the non-commercial boating sector the flow patterns of the main use summer season will still attract boaters and uses however at much reduced levels and provide much degraded resource values. There is an estimated loss of about 17,760 user-days on the South Fork American River; when considering local alternatives, a loss of about 16,870 user-days in the area; and, when considering regional alternatives, a loss of about 15,980 user-days from boating activities.

On the South Fork of the American River between Chili Bar and Folsom Reservoirs, these losses in visitation and user-days may have consequences to recreational facilities. The 53 percent reduction in whitewater boating and the loss of essentially all commercial operations in the main summer season may likely result in the general under-utilization of all existing boating access facilities. Some of these are private and are operated on a for-profit basis. Others are developed and maintained by public agencies and have user fees. The Lower Run would be substantially affected by the project, and the commercial and non-commercial take-out facilities on Folsom Reservoir (maintained and operated by State Parks) would go nearly unused for their intended purposes. Similarly, the put-in facilities for this run in the Coloma/Lotus area would see uses substantially diminished, as they would only serve as take-out facilities for the Upper Run. The put-in facilities at Chili Bar would also have serious reductions in use (see Table 4.6-35 below).

**Table 4.6-35 Estimates of Potential Whitewater Recreation Activities Under New Project Operational Conditions**

W-Y Type	July Weekdays		July Weekend-Days		August Weekdays		August Weekend-Days	
<b>Commercial Uses</b>								
Wettest	UR-OK	100%	UR-OK	100%	UR-OK	100%	UR-OK	100%
	LR-OK	100%	LR-OK	100%	LR-OK	100%	LR-Late flow	100%
Wet	UR-OK	100%	UR-Late flow	0%	UR-OK	100%	UR-Late flow	0%
	LR-Late flow	0%	LR-Late flow	0%	LR-Late flow	0%	LR-Late flow	0%
Slightly Wet	UR-OK	100%	UR-Late flow	0%	UR-OK	100%	UR-Late flow	0%
	LR-OK	100%	LR-Late flow	0%	LR-Late flow	0%	LR-Late flow	0%
Slightly Dry	UR-OK	100%	UR-Late flow	0%	UR-OK	100%	UR-Late flow	0%
	LR-Late flow	0%	LR-Late flow	0%	LR-Late flow	0%	LR-Late flow	0%
Dry	UR-OK	100%	UR-Late flow	0%	UR-OK	100%	UR-Late flow	0%
	LR-Late flow	0%	LR-Late flow	0%	LR-Late flow	0%	LR-Late flow	0%
Driest	UR-Low flow	0%	UR-Low flow	0%	UR-Low flow	0%	UR-Low flow	0%
	LR-Low flow	100%	LR-Low flow	100%	LR-Low flow	100%	LR-Low flow	100%
<b>Non-Commercial Uses</b>								
Wettest	UR-OK	100%	UR-OK	100%	UR-OK	100%	UR-OK	100%
	LR-OK	100%	LR-OK	100%	LR-OK	100%	LR-Late flow	50%
Wet	UR-OK	100%	UR-Late flow	10%	UR-OK	100%	UR-Late flow	0%
	LR-Late flow	50%	LR-Late flow	0%	LR-Late flow	50%	LR-Late flow	0%
Slightly Wet	UR-OK	100%	UR-OK	100%	UR-OK	100%	UR-Late flow	20%
	LR-OK	100%	LR-Late flow	0%	LR-Late flow	100%	LR-Late flow	0%
Slightly Dry	UR-OK	100%	UR-Late flow	10%	UR-OK	100%	UR-Late flow	0%
	LR-Late flow	50%	LR-Late flow	0%	LR-Late flow	50%	LR-Late flow	0%
Dry	UR-OK	100%	UR-Late flow	10%	UR-OK	100%	UR-Late flow	0%
	LR-Late flow	50%	LR-Late flow	0%	LR-Late flow	50%	LR-Late flow	0%
Driest	UR-Low flow	0%	UR-Low flow	0%	UR-Low flow	0%	UR-Low flow	0%
	LR-Low flow	0%	LR-Low flow	0%	LR-Low flow	0%	LR-Low flow	0%

UR = Upper Run

LR = Lower Run

Percentage: Commercial; expected occurrence frequencies.

Non-Commercial; expected occurrence frequencies and expected user levels combined.

Source: WRC Environmental, 2000

These access use changes likely would result in facility closures and would represent a reduction in user access options.

The estimated change in commercial use patterns and use levels would also have consequences for the camping facilities on the South Fork. Presently there are 13 campgrounds along the South Fork American River with a total capacity of about 3,000 users. Of these, two are on BLM lands and are used exclusively for whitewater boating. Of the remaining 11 campgrounds, eight are used exclusively by commercial rafting clients. These are mostly owned and operated by commercial

rafting companies. While it is difficult to anticipate the strategies the commercial sector will adopt to accommodate potential future project flow patterns, these commercial rafting-oriented campgrounds would experience substantial declines in use. Their closures would be a function of particular company strategies. A decline in whitewater recreation uses should not adversely affect the remaining non-boating oriented campgrounds.

This assessment indicates that the project could result in a significant impact on water-based recreation and water-based recreational facilities on the South Fork American River.

***Summary of Impact 6-1: Entire Drum Regional Bundle***

The Drum Regional Bundle would experience the following significant impacts:

- Access to Van Arsdale Reservoir is presently unconstrained by prohibitions and on-site management. An aggressive future land manager could adversely affect public access to this resource and limit present water-based recreational opportunities.
- Access to the Eel River is presently unconstrained by prohibitions and on-site management. An aggressive future land manager could adversely affect public access to this resource and limit present water-based recreational opportunities.
- Based on the results of hydrologic modeling for Lake Spaulding presented in Section 4.3, the lake could be drawn down to the point where the boat ramp is no longer useable by the end of the season.
- With the project, access to South Yuba River areas between Lang Crossing and Lake Spaulding and a portion of river below Lang Crossing would be reduced.
- Possible changed hydroelectric operations due to the project could adversely affect whitewater recreation on the South Fork American River below Chili Bar Reservoir.

**4.6.8.4 Impact 6-1: Motherlode Regional Bundle**

**Bundle 13: Mokelumne River Bundle**

***Mokelumne River (FERC 0137)***

***Upper Blue Lake Reservoir***

***Impacts Identified as Less Than Significant.*** Two key elements dictate the quality and level of water-based recreation at Upper Blue Lake Reservoir. These are: 1) reservoir operations, and 2) the availability of public access on FERC-Licensed Areas and Watershed Lands.

Projected Upper Blue Lake Reservoir storage levels under the proposed project's PowerMax Scenario and WaterMax Scenario indicate a *less than significant* change relative to water-based recreation. Projected changes in reservoir operations would not significantly change the frequency with which, 1) recreational facilities become unusable or 2) the water conditions or lake levels become unsuitable for water-dependent activities such as boating, fishing, and shore activities. This is because the reservoir's informal boat ramp is unaffected by reservoir drawdowns, therefore, changes in the frequency or extent of future drawdowns will not affect the use of the boat ramp. Earlier or more frequent drawdowns at this facility could have a limited effect on the quality of recreation at the lake. This effect, however, is not expected to result in a significant (greater than

10 percent) reduction in recreational opportunities. The impact of project reservoir operational changes, therefore, is considered to be *less than significant*.

Potential changes in area land use (which could result in development of 67 EDUs), timber harvest, mineral extraction, or consumptive water allocation brought about by the project would not appreciably affect hydroelectric operations at the reservoir or access to the reservoir. These potential changes, therefore, are found to have a *less than significant* impact on water-based recreation at the reservoir.

***Impacts Identified as Significant.*** As shown on Figure 4.6-13, the Upper Blue Lake Watershed Lands are immediately adjacent to FERC-Licensed Areas and extend further landward from the reservoir. The Pacific Gas and Electric Company campgrounds are located on these lands. These lands are forested and have potential cabin sites. Should these lands be developed to these or other land disturbing management activities there could be conflicts with land and water-based recreational resources that could lead to losses of water-based recreational uses and the diminished resource quality of facilities that support water-based recreation such as the campsites. It is anticipated that the Blue Lakes Road will be paved through to Blue Lakes in 2001, which will increase recreation and development pressures on this area (USFS, 2000m). This is considered a *significant impact* requiring mitigation measures.

#### ***Lower Blue Lake Reservoir***

***Impacts Identified as Less Than Significant.*** Two key elements dictate the quality and level of water-based recreation at Lower Blue Lake Reservoir. These are: 1) reservoir operations, and 2) the availability of public access on FERC-Licensed Areas and Watershed Lands. Projected Lower Blue Lake Reservoir storage levels under the PowerMax and WaterMax scenarios indicate a *less than significant* change in water-based recreation relative to the baseline conditions. That is to say projected changes in reservoir operations would not significantly change the frequency with which, 1) recreational facilities become unusable or 2) the water conditions or lake levels become unsuitable for water-dependent activities such as boating, fishing, and shore activities. This is because no elevation limitations were identified for the formal, but unimproved, boat ramp and the ramp would be unaffected by changes in the extent or frequency of reservoir drawdowns. Earlier or more frequent drawdowns at this facility could have a limited effect on the quality of recreation at the lake, but are not expected to result in a significant (greater than 10 percent) reduction in recreational opportunities. The impact of project reservoir operational changes, therefore, is considered to be *less than significant*.

Potential changes in area land use, timber harvest, mineral extraction, or consumptive water allocation brought about by the project would not appreciably affect hydroelectric operations at the reservoir or access to the reservoir. These potential changes, therefore, are found to have a *less than significant* impact on water-based recreation at the reservoir.

**Impacts Identified as Significant.** As shown in Figure 4.6-13, Watershed Lands are immediately adjacent to FERC Licensed Lands and extend further landward from the reservoir. The Pacific Gas and Electric Company campgrounds are located on these lands. These lands are forested and have potential cabin sites. Should these lands be developed to these or other land disturbing management activities there could be conflicts with land and water-based recreational resources that could lead to losses of water-based recreational uses and the diminished resource quality of facilities that support water-based recreation such as the campsites. It is anticipated that the Blue Lakes Road will be paved through to Blue Lakes in 2001 which will increase recreation and development pressures on this area (USFS, 2000m). This is considered a *significant impact* requiring mitigation measures.

#### ***Twin Lake Reservoir***

**Impacts Identified as Less Than Significant.** Two key elements dictate the quality and level of water-based recreation at Twin Lake Reservoir. These are: 1) reservoir operations, and 2) the availability of public access on FERC-Licensed Areas and Watershed Lands. Projected changes in Twin Lake Reservoir operations would not significantly change the frequency with which, 1) recreational facilities become unusable or 2) the water conditions or lake levels become unsuitable for water-dependent activities such as boating, fishing, and shore activities. As there are no developed facilities at the lake that become unusable below a certain surface elevation and because the lake has no camping facilities and only light day use, the impact of reservoir operational changes due to the proposed project is considered to be *less than significant*.

Potential changes in area land use, timber harvest, mineral extraction, or consumptive water allocation brought about by the project would not appreciably affect hydroelectric operations at the reservoir or access to the reservoir. These potential changes, therefore, are found to have a *less than significant* impact on water-based recreation at the reservoir.

**Impacts Identified as Significant.** As shown in Figure 4.6-13, the Watershed Lands are immediately adjacent to FERC-Licensed Areas and extend further landward from the reservoir. These lands are forested and have potential cabin sites. Should these lands be developed to these or other land disturbing management activities there could be conflicts with land and water-based recreational resources that could lead to losses of water-based recreational uses and the diminished resource quality of facilities that support water-based recreation such as the campsites. These land use and resource use conversions could also reduce the capacity for these lands to be modified to increase the recreation uses through the development of walk-in camps and picnic facilities. It is anticipated that the Blue Lakes Road will be paved through to Blue Lakes in 2001, which will increase recreation and development pressures on this area (USFS, 2000m). This is considered a *significant impact* requiring mitigation measures.

### ***Meadow Lake Reservoir***

***Impacts Identified as Less Than Significant.*** Two key elements dictate the quality and level of water-based recreation at Meadow Lake Reservoir. These are: 1) reservoir operations, and 2) the availability of public access on FERC-Licensed Areas and Watershed Lands. Projected changes in Meadow Lake Reservoir operations would not significantly change the frequency with which 1) recreational facilities become unusable or 2) the water conditions or lake levels become unsuitable for water-dependant activities such as boating, fishing, and shore activities. As there are no developed facilities at the lake that become unusable below a certain surface elevation, and because the lake has no camping facilities and only light day use, the potential impact of reservoir operational changes due to the proposed project is considered to be *less than significant*.

Potential changes in area land use, timber harvest, mineral extraction, or consumptive water allocation brought about by the project would not appreciably affect hydroelectric operations at the reservoir or access to the reservoir. These potential changes, therefore, are found to have a *less than significant* impact on water-based recreation at the reservoir.

***Impacts Identified as Significant.*** As shown in Figure 4.6-13, the Watershed Lands are immediately adjacent to FERC-Licensed Areas and extend further landward from the reservoir. Should these lands be developed to land disturbing management activities there could be conflicts with land and water-based recreational resources that could lead to losses of water-based recreational uses and the diminished resource quality of facilities that support water-based recreation such as the campsites. It is anticipated that the Blue Lakes Road will be paved through to Blue Lakes in 2001 which will increase recreation and development pressures on this area (USFS, 2000m). This is considered a *significant impact* requiring mitigation measures.

### ***Salt Springs Reservoir***

***Impacts Identified as Less Than Significant.*** Water-based recreation is limited to bank angling in the immediate vicinity of the dam and maintenance ramp. Angling activities follow the receding shoreline with progressive reservoir drawdown. Changes in hydroelectric operations may influence the rate or timing of drawdown but these are not expected to adversely impact bank angling. Given the limited use of this reservoir in general, the impact on water-based recreation relative to changes in hydrology, land use, mining extraction or timber harvest are considered *less than significant*.

***Impacts Identified as Significant.*** None.

### ***Upper Bear River Reservoir***

***Impacts Identified as Less Than Significant.*** Two key elements dictate the quality and level of water-based recreation at Upper Bear River Reservoir. These are: 1) reservoir operations, and 2) the availability of public access on FERC-Licensed Areas and Watershed Lands. Projected changes in Upper Bear River Reservoir operations would not significantly change the frequency with which,

1) recreational facilities become unusable or 2) the water conditions or lake levels become unsuitable for water-dependent activities such as boating, fishing, and shore activities for the following reasons. This is because there are no developed facilities at the lake that become unusable below a certain surface elevation. In addition, the reservoir presently supports limited day-use on weekend-days in the range of 10-20 user days. Water-based activities primarily are limited to bank angling and non-power boating. Changes in the timing and extent of reservoir drawdowns should not appreciably alter use of the reservoir for angling and non-power boating given the nature of these activities and the already limited recreation use of this facility.

Potential changes in area land use, timber harvest, mineral extraction, or consumptive water allocation brought about by the project would not appreciably affect hydroelectric operations at the reservoir or access to the reservoir. These potential changes, therefore, are found to have a *less than significant* impact on water-based recreation at the reservoir.

***Impacts Identified as Significant.*** Upper Bear River Reservoir Watershed Lands are immediately adjacent to FERC-Licensed Areas and extend further landward from the reservoir. These lands are presently remote but future road development could provide access to them. Timber harvest and cabin site development are potential activities associated with the license (see Section 4.1 Land Use). If these lands are developed as assumed, there could be conflicts with land and water-based recreational resources that could lead to losses of water-based recreational uses and the diminished resource quality of facilities that support water-based recreation such as the campsites. This is considered a *significant impact*. Mitigation actions are proposed to address this impact.

#### ***Lower Bear River Reservoir***

***Impacts Identified as Less Than Significant.*** Two key elements dictate the quality and level of water-based recreation at Lower Bear River Reservoir. These are: 1) reservoir operations, and 2) the availability of public access on FERC-Licensed Areas and Watershed Lands. On-site inspection of Lower Bear River Reservoir indicates that beaches, lake-side and boat-in camps and shoreline uses are improved with moderate drawdown, and with extreme drawdown, visual resource quality is adversely affected. USFS staff and the managers of the Bear River Lake Resort, however, report the possibility of only modest changes in use levels and patterns due to very low water surface elevations. Actual relationships between water surface elevations and user levels at the reservoir, however, are unknown (Bear River Lake Resort, 2000; USFS, 2000p). Boat launching remains practical at the informal boat ramp on Pacific Gas and Electric Company land within the FERC-Licensed Area at elevations much lower than those that strand the formal boat ramp. This switch to the informal ramp and lower surface elevations may preclude some large trailered-boat uses, but boating in general remains essentially unchanged (Bear River Lake Resort, 2000). When the marina becomes stranded, those boat owners who moor larger boats for longer periods take their boats out earlier. Only when very low water surface elevations occur well before Labor Day are reduced day-use and campground uses anticipated, and then at only low levels of reduction (Bear

river Lake Resort, 2000). A review of drawdown sensitivity on water-based recreation indicates that potential impacts of the project will be *less than significant*.

Potential changes in area land use, timber harvest, mineral extraction, or consumptive water allocation brought about by the project would not appreciably affect hydroelectric operations at the reservoir or access to the reservoir. These potential changes, therefore, are found to have a *less than significant* impact on water-based recreation at the reservoir.

Access to water-based recreation at this facility is available on FERC-Licensed Areas and Watershed Lands. The Watershed Lands are scattered around the reservoir and are immediately adjacent to FERC-Licensed Lands and extend further landward from the reservoir. These lands are presently remote but future road development could provide access to them. Timber harvest and cabin site development are potential activities. In most cases these potential changes would not adversely impact water-based recreational resources, opportunities, or facilities.

***Impacts Identified as Significant.*** Along the east shore of Lower Bear River Reservoir there are a several parcels that are immediately adjacent to the shore and this is an area of several boat-campsite of relatively high value. Cabin development on these lands would adversely impact these informal facilities and recreational opportunities. This is considered a *significant impact*. Mitigation actions are proposed to address this impact.

### ***Cole Creek Diversion Impoundment***

***Impacts Identified as Less Than Significant.*** There are no FERC-Licensed Areas or Watershed Lands at this facility, therefore changes in land use, timber harvest or mineral extraction would result in no adverse impacts on water-based recreation. In addition, there are no expected changes in project hydroelectric operations and consumptive water allocation that could adversely impact the limited water-based recreational opportunities at this facility.

***Impacts Identified as Significant.*** None.

### ***Tiger Creek Regulator Reservoir***

***Impacts Identified as Less Than Significant.*** Present water-based recreation at Tiger Creek Regulator Reservoir is limited to bank angling by Pacific Gas and Electric Company prohibition. Bank angling at the reservoir is primarily affected by the availability of public access on FERC-Licensed Areas and Watershed Lands. Potential changes in area land use (development according to Land Use [Section 4.1] is anticipated to be 11 EDUs), timber harvest, mineral extraction, or consumptive water allocation brought about by the project would not appreciably affect access to the reservoir. These potential changes, therefore, are found to have a *less than significant* impact on bank angling at the reservoir.

***Impacts Identified as Significant.*** None.

### ***Tiger Creek Afterbay***

***Impacts Identified as Less Than Significant.*** Present water-based recreation at this facility is limited to bank angling due to a Pacific Gas and Electric Company prohibition. Bank angling at the reservoir is primarily affected by the availability of public access on FERC-Licensed Areas and Watershed Lands. Potential changes in area land use (see Tiger Creek Regulator Reservoir discussion above), timber harvest, mineral extraction, or consumptive water allocation brought about by the project would not appreciably affect access to the reservoir. These potential changes, therefore, are found to have a *less than significant* impact on bank angling at the reservoir.

***Impacts Identified as Significant.*** The project could result in restrictions on access to Tiger Creek Afterbay Watershed Lands. Such restrictions would substantially hinder access to the afterbay and is considered a *significant impact* on water-based recreation.

### ***Electra Diversion Impoundment***

***Impacts Identified as Less Than Significant.*** Present water-based recreation at this facility is limited to minor bank angling use levels by exclusion fencing. Bank angling at the impoundment is primarily affected by the availability of public access on FERC-Licensed Areas and Watershed Lands. Potential changes in area land use (5 EDUs are anticipated on 752 acres in this land area, which includes the West Point Powerhouse and facilities), timber harvest, mineral extraction, or consumptive water allocation brought about by the project would not appreciably affect access to the reservoir. These potential changes, therefore, are found to have a *less than significant* impact on bank angling at the impoundment.

Due to existing limitations on access and the limited extent to which bank angling presently occurs, additional limits on access to the facility are not considered to have a significant impact on area-wide angling opportunities.

***Impacts Identified as Significant.*** None.

### ***Lake Tabeaud Forebay***

***Impacts Identified as Less Than Significant.*** Two key elements dictate the quality and level of water-based recreation at the forebay. These are: 1) hydrologic operations, and 2) the availability of public access on FERC-Licensed Areas and Watershed Lands. Potential changes in area land use (150 EDUs are predicted on 752 acres of land in this area, which includes Electra facilities – see Section 4.1 Land Use for more detail), timber harvest, mineral extraction, or consumptive water allocation brought about by the project would not appreciably affect river hydrology or access. These potential changes, therefore, are found to have a *less than significant* impact on water-based recreation at the forebay.

Lake Tabeaud Forebay Watershed Lands are substantially removed from the water-based recreation activities at Lake Tabeaud. Therefore, any impact of potential changes in hydroelectric operations, land uses, timber harvest, mineral extraction, or consumptive water allocation associated with the project is considered *less than significant* for water-based recreational opportunities and facilities.

**Impacts Identified as Significant.** None.

#### ***Electra Afterbay***

**Impacts Identified as Less Than Significant.** The water-based recreational opportunities and recreation facilities are within the pool area itself, access is through Electra Powerhouse lands. These facilities are not covered by the existing FERC license. There are no changes in hydroelectric operations, land uses (see Lake Tabeaud Forebay discussion above), timber harvest, mineral extraction, or consumptive water allocation that could adversely impact water-based recreational opportunities or facilities. This is considered a *less than significant* impact.

Water-based recreation activities on Electra Powerhouse/Afterbay Watershed Lands are extremely important because they are located on and provide access to the river reach in which there is heavy river-related recreation. The two key elements that dictate the quality and level of water-based recreation along this reach are hydroelectric operations at the powerhouse and the availability of public access to the reach. Potential changes in area land use, timber harvest, and mineral extraction on Watershed Lands (or changes in consumptive water allocation) brought about by the project would not appreciably affect river hydrology or access.

**Impacts Identified as Significant.** The project could result in access restrictions on Watershed Lands associated with Electra Afterbay that presently provide access to the river. This is considered a *significant impact* requiring mitigation.

#### ***Blue Creek; Upper Blue Lake Reservoir to Lower Blue Lake Reservoir***

**Impacts Identified as Less Than Significant.** Stream flows and access availability dictate the quality and level of water-based recreational use on Blue Creek. Potential changes in area land use, timber harvest, mineral extraction, or consumptive water allocation brought about by the project would not appreciably affect streamflows or access to the creek. These potential changes, therefore, are found to have a *less than significant* impact on water-based recreation.

Changes in operations at Upper Blue Lake Reservoir would not alter stream flow in this stream reach to the extent that angling opportunities are substantially diminished. This is considered a *less than significant* impact.

**Impacts Identified as Significant.** None.

***Blue Creek; Lower Blue Lake Reservoir to Deer Creek***

***Impacts Identified as Less Than Significant.*** Stream flows and access availability dictate the quality and level of water-based recreational use on Blue Creek. Potential changes in area land use, timber harvest, mineral extraction, or consumptive water allocation brought about by the project would not appreciably affect streamflows or access to the creek. These potential changes, therefore, are found to have a *less than significant* impact on water-based recreation.

Changes in operations at Lower Blue Lake Reservoir would not alter stream flow in this stream reach to the extent that angling opportunities are substantially diminished. Streamflow changes that could adversely affect recreational uses would be higher flows in the summer months that would prevent safe stream crossings along the off highway vehicle (OHV) route south of Lower Blue Lake Reservoir. Site inspection indicated that streamflows of about 100 cfs are considered manageable, but that flows exceeding 100 cfs would begin to create problems for OHV crossings due to deeper and swifter water. The review of hydrologic modeling results for Blue Creek showed that the number of occurrences of flows above 100 cfs for the PowerMax Scenario increased by 4 percent in the late season and was unchanged in the early and summer season, while the WaterMax Scenario showed no change from baseline conditions. These impacts are considered *less than significant* given the standards of significance presented above.

***Impacts Identified as Significant.*** None.

***Meadow Creek: Twin Lake Reservoir to Meadow Lake Reservoir***

***Impacts Identified as Less Than Significant.*** Stream flows and access availability dictate the quality and level of water-based recreational use on Meadow Creek. Potential changes in area land use, timber harvest, mineral extraction, or consumptive water allocation brought about by the project would not appreciably affect streamflows or access to the creek. These potential changes, therefore, are found to have a *less than significant* impact on water-based recreation.

Changes in operations at Twin Lake Reservoir would not alter stream flow in this stream reach to the extent that angling opportunities are substantially diminished. This is considered a *less than significant* impact.

***Impacts Identified as Significant.*** None.

***Meadow Creek: Meadow Lake Reservoir to the North Fork Mokelumne River***

***Impacts Identified as Less Than Significant.*** Stream flows and access availability dictate the quality and level of water-based recreational use on Meadow Creek. Potential changes in area land use, timber harvest, mineral extraction, or consumptive water allocation brought about by the project would not appreciably affect streamflows or access to the creek. These potential changes, therefore, are found to have a *less than significant* impact on water-based recreation.

Changes in operations at Meadow Lake Reservoir would not alter stream flow in this stream reach to the extent that angling opportunities are substantially diminished. This is considered a *less than significant* impact.

**Impacts Identified as Significant.** None.

#### ***North Fork Mokelumne River; Deer Creek to Salt Springs Reservoir***

**Impacts Identified as Less Than Significant.** Stream flows and access availability dictate the quality and level of water-based recreational use on the North Fork Mokelumne River. Potential changes in area land use, timber harvest, mineral extraction, or consumptive water allocation brought about by the project would not appreciably affect stream flows or access to the river. These potential changes, therefore, are found to have a *less than significant* impact on water-based recreation.

Changes in hydroelectric operations due to the project would not alter stream flow in this stream reach to the extent that angling opportunities are substantially diminished. The hydrology model results for the combined project-related flow changes on Meadow Creek and Blue Creek indicate that the maximum differences in flows are typically in the 10-20 cfs range. This difference is masked by other major tributary flows to the North Fork of the Mokelumne and would largely be unnoticeable by boaters while on the river. Given the magnitude of change and the extremely low use levels on the North Fork, this impact is considered *less than significant* based on the significance criteria presented above. This is considered a less than significant impact.

**Impacts Identified as Significant.** None.

#### ***Cole Creek; Cole Creek Diversion Dam to the North Fork Mokelumne River***

**Impacts Identified as Less Than Significant.** Stream flows and access availability primarily dictate the quality and level of water-based recreational use on Cole Creek. Potential changes in area land use, timber harvest, mineral extraction, or consumptive water allocation brought about by the project would not appreciably affect access to the creek. These potential changes, therefore, are found to have a *less than significant* impact on water-based recreation.

The water-based recreation on these lands is in the form of campsites located in scattered locations along the Cole Creek trail/OHV route adjacent to Cole Creek. There are no changes in hydroelectric operations or consumptive water allocation that could adversely affect water-based recreation.

Changes in land use, timber harvest, and mineral extraction could cause a loss in land-based recreation values which would lead to diminished camping at these riparian sites. The magnitude of these impacts, however, does not exceed the significance criteria presented above. The impact, therefore, is considered *less than significant*.

**Impacts Identified as Significant.** None.

***North Fork Mokelumne River; Salt Springs Dam to Bear River***

**Impacts Identified as Less Than Significant.** Stream flows and access availability dictate the quality and level of water-based recreational use on the North Fork Mokelumne River. Potential changes in area land use, timber harvest, mineral extraction, or consumptive water allocation brought about by the project would not appreciably affect stream flows or access to the river. These potential changes, therefore, are found to have a *less than significant* impact on water-based recreation.

With the exception of the single parcel located about two miles below Salt Springs Dam (see Figure 2-27), North Fork Mokelumne River Watershed Lands provide no access to the river. The parcel that does currently provide access is located between the Salt Springs Road and the North Fork Mokelumne River. Recreation uses of the river in the immediate area of this parcel, however, are such that changes in access through fencing or changes in land use activities would not adversely impact water-based recreation. There is abundant access opportunities both immediately upstream and downstream of the parcel and the parcel itself does not have any particular attraction potential for river uses.

Changes in hydroelectric operations due to the project would not alter stream flow in this stream reach to the extent that angling opportunities are substantially diminished. This is considered a *less than significant* impact.

**Impacts Identified as Significant.** None.

***Bear River; Bear River Reservoir Dam to North Fork Mokelumne River***

**Impacts Identified as Less Than Significant.** Stream flows and access availability dictate the quality and level of water-based recreational use on the Bear River. Potential changes in area land use, timber harvest, mineral extraction, or consumptive water allocation brought about by the project would not appreciably affect stream flows or access to the river. These potential changes, therefore, are found to have a *less than significant* impact on water-based recreation.

Changes in hydroelectric operations due to the project would not alter stream flow in this stream reach to the extent that angling opportunities are substantially diminished. This is considered a *less than significant* impact.

**Impacts Identified as Significant.** None.

***North Fork Mokelumne River; Bear River to Tiger Creek Afterbay***

***Impacts Identified as Less Than Significant.*** Stream flows and access availability dictate the quality and level of water-based recreational use on the North Fork Mokelumne River. Potential changes in area land use, timber harvest, mineral extraction, or consumptive water allocation brought about by the project would not appreciably affect stream flows or access to the river. These potential changes, therefore, are found to have a *less than significant* impact on water-based recreation.

The impacts of flow changes to whitewater boaters were assessed using a lower flow range of 700-900 cfs which mainly covers C-IV kayaking and rafting at probably lower capacity conditions due to rapid constrictions, a moderate flow range of 900-1500 cfs that includes the main use range of C-IV kayakers and all the rafting at probably high capacity limits due to more open rapids, and a higher flow range of 1500-4000 cfs which includes mainly C-V kayaking. For this resource the early season includes only the month of May because of the location's high elevation and problematic April access.

The PowerMax Scenario would increase opportunities by 400 percent in the summer season with the early and late seasons unchanged. The WaterMax Scenario would decrease opportunities by 100 percent in the early season with the summer and late seasons unchanged, and has no effect on lower flow range boating opportunities.

An evaluation for the moderate flow range boating opportunities indicates that the PowerMax Scenario would increase opportunities by 25 percent in the summer season with no effects in either the early or late seasons. WaterMax Scenario would increase opportunities by 100 percent in the early season with the summer and late seasons unchanged.

An evaluation for the higher flow range boating opportunities indicates that the PowerMax Scenario would have no effect on higher flow range boating opportunities. The WaterMax Scenario would increase opportunities by 25 percent in the summer season with the early and late seasons unchanged.

The changed conditions associated with the alternatives are considered *less than significant* and no mitigation actions are proposed.

***Impacts Identified as Significant.*** None.

***Tiger Creek; Tiger Creek Regulator Reservoir Dam to North Fork Mokelumne River***

***Impacts Identified as Less Than Significant.*** Stream flows and access availability dictate the quality and level of water-based recreational use on Tiger Creek. Potential changes in area land use, timber harvest, mineral extraction, or consumptive water allocation brought about by the

project would not appreciably affect stream flows or access to the creek. These potential changes, therefore, are found to have a *less than significant* impact on water-based recreation.

Changes in hydroelectric operations due to the project would not alter stream flow in this stream reach to the extent that angling opportunities are substantially diminished. This is considered a *less than significant* impact.

**Impacts Identified as Significant.** Access could be eliminated as a result of the project. This would adversely affect angling and other water-based recreation along this channel and is considered a *significant impact* requiring mitigation actions.

#### ***North Fork Mokelumne River; Tiger Creek Afterbay Dam to Electra Diversion Impoundment***

**Impacts Identified as Less Than Significant.** Stream flows and access availability dictate the quality and level of water-based recreational use on the North Fork Mokelumne River. Potential changes in area land use, timber harvest, mineral extraction, or consumptive water allocation brought about by the project would not appreciably affect stream flows or access to the river. These potential changes, therefore, are found to have a *less than significant* impact on water-based recreation.

The impacts of flow changes to whitewater boaters were assessed using a flow range of 600-2000 cfs that covers the full range of kayaking (except a few very high flow boaters) and limited rafting.

An evaluation of the monthly average flow modeling for the flow range boating opportunities indicates that the PowerMax Scenario has no effect on boating opportunities. The WaterMax Scenario would decrease opportunities by 7 percent in the early season and increase opportunities by 10 percent in the summer season with the late season unchanged, which has no effect on flow range boating opportunities.

The changed conditions associated with the alternatives are considered *less than significant* and no mitigation actions are proposed.

**Impacts Identified as Significant.** None.

#### ***North Fork Mokelumne River/Mokelumne River; Electra Diversion Dam to Electra Afterbay***

**Impacts Identified as Less Than Significant.** Two key elements dictate the quality and level of water-based recreation on the river. These are: 1) hydrologic operations, and 2) the availability of public access on FERC-Licensed Areas and Watershed Lands. Potential changes in area land use, timber harvest, mineral extraction, or consumptive water allocation brought about by the project would not appreciably affect river hydrology or access. These potential changes, therefore, are found to have a *less than significant* impact on water-based recreation on the river.

**Impacts Identified as Significant.** None.

### ***Mokelumne River: Electra Afterbay Dam to Pardee Reservoir***

**Impacts Identified as Less Than Significant.** Two key elements dictate the quality and level of water-based recreation on the river. These are: 1) hydrologic operations, and 2) the availability of public access on FERC-Licensed Areas and Watershed Lands. Potential changes in area land use, timber harvest, mineral extraction, or consumptive water allocation brought about by the project would not appreciably affect river hydrology or access. These potential changes, therefore, are found to have a *less than significant* impact on water-based recreation on the river.

Water-based recreation activities on Mokelumne River Watershed Lands are extremely limited due to poor access but some are located directly on the river in reaches where whitewater boating is ongoing. Potential changes in hydroelectric operations, land uses, timber harvest, mineral extraction, or consumptive water allocation associated with this project are expected to have a *less than significant* impact on water-based recreational opportunities and facilities.

The impacts of flow changes to whitewater boaters were assessed using a lower flow range of 700-900 cfs, which mainly covers C-II beginner kayaking, whitewater canoeing, and rafting at lower levels of hydraulic intensity, and a higher flow range of 1000-2000 cfs for the same activity-types probably at higher skill levels and hydraulic intensity. These flow ranges do not consider the very low flows when users are mostly casual floaters.

An evaluation of the monthly average flow modeling for lower flow range boating opportunities indicates that the PowerMax Scenario would increase opportunities by 75 percent in the early season and 3 percent in summer season, and decrease by 3 percent in the late season relative to baseline conditions. The WaterMax Scenario would increase opportunities by 50 percent in the early season and 6 percent in the summer season, with the late season unchanged.

An evaluation for the higher flow range boating opportunities indicates that the PowerMax Scenario would decrease opportunities by 9 percent in the early season and increase opportunities by 14 percent summer season and the late season would remain unchanged. The WaterMax Scenario would decrease opportunities by 23 percent in the early season and the summer and late seasons unchanged.

The changed conditions associated with the alternatives are considered as *less than significant* and no mitigation actions are proposed.

**Impacts Identified as Significant.** The Mokelumne River Agreement specifies that Pacific Gas and Electric Company will make a good-faith effort to secure suitable lands in the vicinity of the Highway 49 Bridge for the purpose of developing a whitewater take-out facility. It is unproven whether a new owner would be obligated to secure suitable lands. Failure to do so would result in

a loss in recreational opportunities and facilities intended under the Mokelumne Agreement. This is considered a *significant impact* on water-based recreation.

### ***Panther Creek Watershed Lands***

***Impacts Identified as Less Than Significant.*** There are no water-based recreation activities or facilities on Panther Creek Watershed Lands but the lands are immediately adjacent to the channel that supports limited water-based recreation, particularly angling. Changes in hydroelectric operations, land uses, timber harvest, mineral extraction, or consumptive water allocation associated with this project would not be expected to affect adjacent water-based recreational opportunities.

***Impacts Identified as Significant.*** Access could be eliminated as a result of the project. This would adversely affect angling and other water-based recreation along this channel and is considered a *significant impact* requiring mitigation actions.

### **Bundle 14: Stanislaus River**

#### ***Spring Gap-Stanislaus (FERC 2130)***

##### ***Relief Reservoir***

***Impacts Identified as Less Than Significant.*** Pacific Gas and Electric Company has no FERC-Licensed Areas or Watershed Lands in the vicinity of the reservoir. Therefore, project-related changes in land use, mineral extraction, or timber harvest on such lands would have a *less than significant* impact on water-based recreation at Relief Reservoir.

Due to limited day use and camping facilities at the reservoir, in combination with a lack of boat launching facilities, the impact project-related changes in reservoir operations on water based recreation at Relief Reservoir are considered to be *less than significant*.

***Impacts Identified as Significant.*** None.

##### ***Strawberry Reservoir (Pinecrest Lake)***

***Impacts Identified as Less Than Significant.*** Pacific Gas and Electric Company has no FERC-Licensed Area or Watershed Lands in the vicinity of the reservoir. Therefore, project-related changes in land use, mineral extraction, or timber harvest on such lands would have a *less than significant* impact on water-based recreation at Strawberry Reservoir.

***Impacts Identified as Significant.*** The impacts of water surface elevation changes to reservoir recreation were assessed using a higher elevation range of 5,606 ft. and greater that includes all recreational opportunities from full pool through to the point just before losing the functional operations of the marina, a moderate water surface elevation range of 5,605.9 to 5,599 ft. that

includes loss of the marina through to the point just before losing the use of the public boat ramp, and a lower water surface elevation range of 5,598.9 to 5,579 ft. which includes the continued loss of recreation uses through to nearly 40 ft. of drawdown.

An evaluation of the end-of-month water surface elevation modeling for higher elevation range recreational opportunities indicates that, relative to the baseline, the PowerMax Scenario would decrease opportunities by about 17 percent in the summer season and 67 percent in the late season, with the early season unchanged relative to baseline conditions. The WaterMax Scenario would decrease opportunities by 4 percent in the early season, 8 percent in the summer season, and 17 percent in the late season.

An evaluation for the moderate water surface elevation range for recreational opportunities indicates that the PowerMax Scenario would decrease opportunities by 60 percent in the early season, 25 percent in the summer season, and 71 percent in the late season. The WaterMax Scenario would decrease opportunities by 40 percent in the summer season and 52 percent in the late season, with the early season unchanged.

An evaluation of the lower water surface elevation range for recreational opportunities indicates that the PowerMax Scenario would decrease opportunities by 9 percent in the early season, increase opportunities by 533 percent in the summer season, and decrease opportunities by 10 percent in the late season. The WaterMax Scenario would decrease opportunities by 17 percent in the early season, and increase opportunities by 466 percent in the summer season and by 10 percent in the late season.

The changes in reservoir recreational opportunities in the various project scenarios represent a net loss. The recreation values of this resource are among the highest in the region. This impact is considered *significant* requiring mitigation.

### ***Philadelphia Diversion Pool***

***Impacts Identified as Less Than Significant.*** There are few water-based recreational opportunities or facilities at Philadelphia Diversion Pool and Pacific Gas and Electric Company has no FERC-Licensed Areas or Watershed Lands in the vicinity of the reservoir that could adversely affect water-based recreation at the license facility. Project-related changes in land use, mineral extraction, or timber harvest on such lands would have a *less than significant* impact on water-based recreation at Philadelphia Diversion Pool.

***Impacts Identified Significant.*** None.

### ***Sand Bar Reservoir***

***Impacts Identified as Less Than Significant.*** There are no anticipated substantial changes in project hydroelectric operations and Pacific Gas and Electric Company has no FERC-Licensed

Areas or Watershed Lands in the vicinity of the reservoir that could adversely affect water-based recreation at the license facility. Project-related changes in land use, mineral extraction, or timber harvest on such lands would have a *less than significant* impact on water-based recreation at Sand Bar Reservoir.

**Impacts Identified as Significant.** None.

#### ***Stanislaus Forebay Reservoir***

**Impacts Identified as Less Than Significant.** Water-based recreational opportunities and facilities at Stanislaus Forebay Reservoir are limited to bank angling. There are no anticipated changes in license hydroelectric operations. Although there are Pacific Gas and Electric Company FERC-Licensed Areas and Watershed Lands in the vicinity of the reservoir that could be affected by the project, significant project-related changes in water-based recreation conditions at the license facility are not anticipated due to FERC recreation plan and management conditions that would carry over to the new owner under the project.

The water-based recreational opportunities and facilities on Stanislaus Forebay Watershed Lands are limited to bank angling due to the operational necessities of the license, and this activity and related facilities are controlled by the FERC recreation plan. Therefore, no potential changes in project-related hydroelectric operations, land use, timber harvest, mineral extraction or the consumptive allocated water are expected to result in a significant impact on water-based recreation.

**Impacts Identified as Significant.** None.

#### ***Stanislaus Afterbay***

**Impacts Identified as Less Than Significant.** There are presently no recreational opportunities or facilities at Stanislaus Afterbay and Pacific Gas and Electric Company has no FERC-Licensed Areas or Watershed Lands in the vicinity of the reservoir that could adversely affect present or future water-based recreation at this license facility. There are no anticipated water-based recreational opportunities or recreation facility impacts on this facility due to project-related hydroelectric operational, land use, timber harvest, mineral extraction or the consumptive allocated water changes.

**Impacts Identified as Significant.** None.

#### ***Summit Creek/Middle Fork Stanislaus River to Clark Fork***

**Impacts Identified as Less Than Significant.** None.

***Impacts Identified as Significant.*** The project could influence streamflows and activities on Watershed Lands that, in turn, could affect water-based recreation. For reasons presented below, this is considered a *significant impact* requiring mitigation.

Land activities on the leased Kennedy Meadows Watershed Lands could change in the future. A future owner could move to develop high density resort facilities, place private cabins along either side of the river, or move to establish a large area of improved car-camp facilities with special river access provisions. These changes could lead to restrictions on public access to the Middle Fork Stanislaus River on these lands. This would result in lost angling, water contact, and riparian recreation along about a mile of this reach. These changes would also adversely affect the resource values of the recommended Wild and Scenic River designation. A more intense timber harvesting program could also reduce resource values associated with water-based recreation.

This is considered a *significant impact* requiring mitigation.

The impacts of flow changes in Summit Creek/Middle Fork Stanislaus River on stream uses were assessed using a flow range of 10-50 cfs which covers the observed instream uses such as water-contact and angling. Limited whitewater boating also occurs in this reach but these activities are mainly supported by early season flows and tributary flows that are not part of the flows represented by the model. Due to strong seasonal flow patterns at high elevations and the major flow contributions of tributaries located below Relief Reservoir, the months evaluated only include July and August of the summer season and September and October of the late season.

An evaluation of the monthly average flow modeling for flow range instream recreational opportunities indicates that, relative to baseline conditions, the PowerMax Scenario would decrease opportunities by 13 percent in the summer season and 15 percent in the late season. The WaterMax Scenario would decrease opportunities by 13 percent in the summer season and 12 percent in the late season.

The loss of 13 percent of the instream recreational opportunities during the months of July and August for all alternatives is considered *significant*. Mitigation actions are proposed.

#### ***South Fork Stanislaus River; Strawberry Dam to Lyons Reservoir***

***Impacts Identified as Less Than Significant.*** There are no anticipated changes in license hydroelectric operations and Pacific Gas and Electric Company has no FERC-Licensed Areas or Watershed Lands in the vicinity of this stream reach above Spring Gap Road that could adversely affect water-based recreation on this stream reach.

***Impacts Identified as Significant.*** Project-related changes in use on Pacific Gas and Electric Company Watershed Lands located below Spring Gap Road could adversely affect water-based recreation and are addressed in the Phoenix license analysis presented below.

***Middle Fork Stanislaus River; Spring Gap Powerhouse to Sand Bar Reservoir***

***Impacts Identified as Less Than Significant.*** There are no anticipated changes in hydroelectric operations as a result of the project. Pacific Gas and Electric Company has both FERC-Licensed Areas and Watershed Lands in the vicinity of this stream reach at the Spring Gap Powerhouse. These lands, however, are located in steep rugged terrain with little land use, timber harvest, and mineral extraction opportunities. No consumptive water allocation issues have been identified in this reach related to recreation. There are no anticipated water-based recreational opportunities or recreation facility impacts to this reach due to project-related hydroelectric operational, land use, timber harvest, mineral extraction or the consumptive allocated water changes. No mitigation actions are proposed to address these issues.

***Impacts Identified as Significant.*** Current public access to Middle Fork Stanislaus reach for the purposes of water-based recreation is provided by the trail between Sand Bar Flat and Beardsley that traverses the Project Lands at the powerhouse. This trail does not have a perfected public access easement. The USFS reports that Pacific Gas and Electric Company has recently transferred some of these lands to another owner which has further jeopardized public access to the trail and to waters (USFS, 2000i). The project could further jeopardize this access and is considered a *significant impact* requiring mitigation.

***Middle Fork Stanislaus River; Sand Bar Dam to North Fork Stanislaus River***

***Impacts Identified as Less Than Significant.*** There are no anticipated changes in license hydroelectric operations on the Middle Fork Stanislaus River and Pacific Gas and Electric Company has no Project Lands Areas or Watershed Lands (except at the Stanislaus Powerhouse) along this reach. Therefore, project impacts related to hydrological changes or Watershed Lands use changes and access are considered to be *less than significant*.

***Impacts Identified as Significant.*** None.

***Spring Gap Powerhouse Watershed Lands***

***Impacts Identified as Less Than Significant.*** There are no water-based recreational opportunities or facilities on these lands. No changes in hydroelectric operations or consumptive allocated water are expected in the vicinity of these lands. Therefore no impacts from these changes are expected and no mitigation actions are proposed.

***Impacts Identified as Significant.*** These lands are in the viewshed of water-based recreation along the Middle Fork Stanislaus River. In addition, the USFS has instituted relatively high land use standards on adjacent National Forest lands that are aimed at maintaining high scenic values. Aggressive land management practices of a new owner could adversely affect water-based recreational resources and opportunities due to changes in land use, timber harvest, and mineral extraction. Potential development, according to the Land Use Section (Chapter 4.1), is predicted to

be 37 EDUs on 1,362 acres in the land area. This includes Stanislaus complex lands. This is considered a *significant impact* requiring mitigation measures.

#### ***Phoenix License Facilities (FERC 1061)***

##### ***Lyons Reservoir***

***Impacts Identified as Less Than Significant.*** Under present Pacific Gas and Electric Company reservoir and land management there is little realized water-based recreation uses, opportunities, and facilities at Lyons Reservoir. Because there are no uses of the reservoir itself, other than bank angling which occurs mostly from the top of Lyons Dam, there are no expected impacts on water-based recreational opportunities or recreational facilities at this license element due to project-related hydroelectric operational, timber harvest, mineral extraction, or access changes or potential changes in consumptive use of allocated water. Therefore no mitigation actions are proposed addressing these aspects.

***Impacts Identified as Significant.*** Under present recreation management, the main angling activity site is the walkway along the crest of Lyons Dam and this is also the angling access to the west and north shore of the reservoir. An aggressive future owner could prohibit foot access on this facility and seriously further restrict recreational opportunities at this license element. This is considered a *significant impact* requiring mitigation measures.

Land use changes (which may result in development of 10 EDUs) or more aggressive timber harvest regime along the Sugar Pine Railroad Trail on Watershed Lands on the east and south shore Lyons Reservoir could have adverse impacts to the users of the Sugar Pine Railroad Trail which would in turn have an adverse impact of water-related recreation along the South Fork Stanislaus River between Lyons Reservoir and Strawberry. The rationale for these impacts is presented above under “South Fork Stanislaus River; Spring Gap Road to Lyons Reservoir.” Mitigation measures are required.

##### ***Phoenix Lake***

***Impacts Identified as Less Than Significant.*** Pacific Gas and Electric Company delivers water to this facility under agreement with the Tuolumne Utility District (TUD) and it does not have any lands in the vicinity of this lake. There are no anticipated water-based recreational opportunities or recreation facility impacts to this facility due to project-related hydroelectric operational, land use, timber harvest, mineral extraction or the consumptive water allocation changes.

***Impacts Identified as Significant.*** None.

***South Fork Stanislaus River; Lyons Dam to New Melones Reservoir***

***Impacts Identified as Less Than Significant.*** Pacific Gas and Electric Company does not control access to this reach of the Stanislaus River that is currently being used for water-based recreation, and the project would have no influence on streamflows below Lyons Dam. About 2 mile downstream of Lyons Dam there is a parcel of Pacific Gas and Electric Company Watershed Land. However, there are no known water-based recreational activities in this area. Therefore, potential project impacts on water-based recreation on the South Fork of the Stanislaus River related to possible changes in hydroelectric operations or changes in land use, timber management, mineral extraction or public access on Project Lands or Watershed Lands would be *less than significant*.

***Impacts Identified as Significant.*** None.

***Phoenix Powerhouse Creek***

***Impacts Identified As Less Than Significant.*** There are no public water-based recreational opportunities or facilities on this stream and Pacific Gas and Electric Company delivers water to this stream under agreement with the Tuolumne Utility District (TUD). About a hundred yards of this stream is on Pacific Gas and Electric Company FERC-Licensed Areas; however, presently the only recreation values of this stream are visual in nature when the powerhouse lands are visited. Due to channel size, gradient, and typical powerhouse flows there is little opportunity to increase the safe water-based recreational opportunities of this stream on these lands. Therefore, potential project impacts on water-based recreation on “Phoenix Powerhouse Creek” related to possible changes in hydroelectric operations or changes in land use, timber management, mineral extraction or public access on FERC-Licensed Areas or Watershed Lands would be *less than significant*.

***Impacts Identified as Significant.*** None.

***South Fork Stanislaus River; Spring Gap Road to Lyons Reservoir***

***Impacts Identified as Less Than Significant.*** Potential water-based recreation impacts on this resource can occur due to either streamflow changes or land management practices. Because potential streamflow changes on this reach are controlled by Pacific Gas and Electric Company’s Spring Gap-Stanislaus license (FERC 2130), streamflow related impacts are addressed in that analysis presented above. Potential impacts on water-based recreation due to land management practices are discussed here. Potential water-based recreational opportunities and recreation facility impacts are discussed below.

Most of the water-based recreational opportunities and uses on the resource are directly associated with land-based access and land management and much of it is associated with land-based recreational activities. There are no identified mineral resources on these lands and there are no anticipated water-based recreational opportunities or recreation facility impacts on this resource due to project-related mineral extraction or changes in consumptive water allocation.

***Impacts Identified as Significant.*** Water-based recreation resource uses and opportunities of this resource are susceptible to impacts due to project-related land use and timber harvest changes and access opportunities. Land use changes could include more aggressive control over uses of Pacific Gas and Electric Company lands off the alignment of the Sugar Pine Railroad trail. This could preclude angling and water contact recreation that are the main attractors for the land-based camping uses on these lands as well. Subdivision and sale and/or lease for rural residential or summer cabins could also reduce access to the channel on these lands. Timber harvest activities could also reduce the resource opportunities for water-based recreation by significantly reducing the land-based recreational resource values, particularly along the Sugar Pine Railroad Trail in areas between the trail and the channel. Land use conversion to rural residential or summer cabins or a more aggressive timber harvest regime could also adversely effect the water-based recreation on the channel both upstream and downstream of Pacific Gas and Electric Company lands due a potential decrease in the recreational uses of the Sugar Pine Railroad Trail. In addition to these land use and resource condition impacts, access to these lands by the Sugar Pine Trail is not assured by a public access easement. Project-related elimination of this access could lead to losses of water-based recreation on these lands. These are considered ***significant impacts*** requiring mitigation measures.

#### ***South Fork Stanislaus River Watershed Lands Above Lyons Reservoir***

The water-based recreational opportunities and facility impact issues relevant to these lands are addressed above under “South Fork Stanislaus River; Spring Gap Road to Lyons Reservoir.” No additional mitigation actions are proposed.

#### ***Main Tuolumne Canal Fishing Access Watershed Lands***

***Impacts Identified as Less Than Significant.*** All of the water-based recreation on and adjacent to these lands is associated with angling in the Main Tuolumne Canal. Angling in the canal extends both upflow and downflow of these lands, often in direct association with adjacent rural residences. This use appears insensitive to altered conditions so long as there is access, fishable flows, and fish. There are no expected water-based recreation impacts due to project-related hydroelectric, land use, timber harvest, mineral extraction, or consumptive water allocations changes. Therefore no mitigation actions are proposed.

***Impacts Identified as Significant.*** None.

#### **Bundle 15: Merced River Bundle**

##### ***Merced Falls Project (FERC 2467)***

##### ***Merced Falls Reservoir and Merced River; Merced Falls Dam to Snelling Diversion Impoundment***

**Impacts Identified as Less Than Significant.** As discussed in the setting section of this chapter, Pacific Gas and Electric Company has very limited flexibility in its operation of Merced Falls Reservoir and it has no water storage rights at the reservoir. Inflows, diversions at the dam, and river return flows are controlled by other water entities and Pacific Gas and Electric Company is specifically required to operate the reservoir to match outflows at the dam to inflows from McSwain Reservoir. Project-related changes in hydroelectric operations at the reservoir, therefore, would be *less than significant*, as would the impact of such changes on water-based recreation.

Nearly all the lands in the vicinity of Merced Falls Reservoir are private. The 12 acres of Project Lands at the reservoir supports reservoir access, bank angling, parking, and day-use car-top launching, and only one acre of Watershed Land is associated with the reservoir. Substantial changes in land use, timber harvest or mineral extraction are not expected on FERC-Licensed Areas or the one acre of Watershed Land and would have a *less than significant* effect on already limited recreational use (less than 5,000 visits annually) at the reservoir.

As discussed above, operational flexibility at Merced Falls Reservoir is limited. As a result, project impacts on Merced River hydrology downstream of Merced Falls Dam would be insignificant. Project-related hydrologic impacts on water-based recreation on the river, therefore, are considered to be *less than significant*.

**Impacts Identified as Significant.** None.

### ***Watershed Lands***

**Impacts Identified as Less Than Significant.** Pacific Gas and Electric Company Watershed Lands in the license area are limited to a narrow strip of land bordering the north shore of the reservoir along its eastern extent. According to the Land Use Section (Chapter 4.1), only one EDU is predicted for development in this bundle out of 8 acres total. Changes on these lands could adversely impact foot access to and bank angling at portions of the reservoir. There is no known potential for changed hydroelectric operations, timber harvest, or mineral extraction that could impact water-based recreation.

**Impacts Identified as Significant.** Land use changes of the Watershed Land in the form of rural residential development could prevent recreational access and bank angling along about 25 percent of the shoreline. These Watershed Lands could represent a major reservoir bank access resource. The potential loss of access is considered a *significant impact* requiring mitigation.

### **Impact to Entire Motherlode Regional Bundle**

The Motherlode Regional Bundle would experience the following impacts:

- Presently, the Mokelumne River Agreement specifies the securing of suitable lands in the vicinity of the Highway 49 Bridge for the purpose of developing a whitewater take-out facility. A new project owner

might not guarantee realization of this facility. This could lead to a loss of recreational opportunities and facilities intended under the Mokelumne Agreement.

- Potential future development of Project Lands and Watershed Lands (especially in the Upper and Lower Bear River Reservoir areas, and Tiger Creek and Panther Creek areas) may lead to loss of water-based recreational uses and facilities that support water-based recreation such as campsites.
- Development may reduce the capacity for Watershed Lands to be used to increase the recreation uses through the development of walk-in camps, picnic areas, and trails (specifically, Upper and Lower Blue Lakes Reservoirs, and Twin Lake Reservoir).
- Lands in the Kennedy Meadows area could be developed as a more high-density resort area. This could restrict access to the Middle Fork Stanislaus River, resulting in lost angling, water contact, and riparian recreation. These changes would also adversely affect the values of the recommended Wild and Scenic River Designation.
- Development of Watershed Lands and/or FERC-Licensed Areas may result in the loss of access to existing trails such as the Sand Bar Flat to Beardsley Trail, the portage trail between Lower and Upper Bear River Reservoirs, and various trails that provide access to fishing in the North Fork Mokelumne River, Middle Fork Stanislaus River, and South Fork Stanislaus River.

### 4.6.8.5 Impact 6-1: Kings Crane-Helms Regional Bundle

#### **Bundle 16: Crane Valley**

#### ***Crane Valley (FERC 1354)***

#### ***Bass Lake***

***Impacts Identified as Less Than Significant.*** Water-based recreational opportunities at Bass Lake include boating, jet skiing, fishing, and swimming. Under project conditions, no significant effects on water-based recreational opportunities or facilities at Bass Lake would result from changes in mineral extraction or allocations of water supply because mineral extraction practices in the vicinity of the reservoir are not expected to change and no changes are expected in water supply contracts affecting the reservoir. Selection timber harvests, in addition to salvage harvests, could occur on approximately 100 acres of forested Watershed Lands near Bass and Manzanita Lakes under the project; however, these harvests are unlikely to have any effect on existing water-based recreational opportunities and facilities at Bass Lake because harvests would occur away from water-based facilities.

Under project conditions, it is assumed that a new owner would uphold the lease permits that Pacific Gas and Electric Company currently honors, including the leases for 192 boat docks and six marine facilities (PG&E Co., 1999b). These dock and marina facilities are within FERC boundaries and FERC generally requires licensees to provide reasonably free access to license waters for recreational purposes. Although a new owner could renegotiate use permits as part of relicensing, it is assumed that FERC would require the new owner to renew these lease permits.

Water-based recreational facilities at Bass Lake are not expected to further deteriorate under project hydrologic operations. The existing facilities at Bass Lake are either within the FERC license boundaries or are recognized by FERC as part of the Crane Valley license. Consequently, it is

assumed that FERC will require a new owner to maintain these existing recreational facilities consistent with standards that apply to ownership by the Pacific Gas and Electric Company

There is potential for development of up to 104 equivalent development units (EDUs) at Bass Lake. If development of these vacant lands did proceed under proposed project conditions, the increased demand for water-based recreational opportunities is not expected to substantially exacerbate congestion at the lake. Although boating congestion during peak seasons has been a concern at Bass Lake (the Proponent's Environmental Assessment characterizes power boating on the lake as at or over capacity), the potential impact of increased boating demand on water-based recreational opportunities would not be significant because the increased use would be small relative to existing use.

***Impacts Identified as Significant.*** Under the baseline conditions, it is assumed that Pacific Gas and Electric Company or a new owner would be bound by the existing contractual agreements. Based on these operations and average hydrologic conditions over the 24-year period of record, the frequency of lake elevations dropping below 3,368 feet (the level at which boat docks on the northeast end of the lake go dry and beachshore at Falls Beach is lost) would increase from 38 percent of summer months (June, July, and August) under baseline conditions to 68 percent of summer months under the PowerMax Scenario. The frequency in which lake levels would drop below 3,364 feet (the level at which 40-50 percent of the boat docks in Fall Tract and Pines Tract go dry) would increase from 11 percent of summer months under baseline conditions to 46 percent of summer months under the PowerMax Scenario. These impacts would be more severe during dry and critically dry water-years. During wet water-years, the summer operation of Bass Lake under PowerMax Scenario would be similar to baseline conditions, and impacts on water-based recreational opportunities would be *significant*.

Under the WaterMax Scenario, lake levels during the summer recreation season would drop below the 3,368 foot level during about 50 percent of summer months (compared to 38 percent of summer months under the baseline condition) and would drop below the 3,364 foot level during about 21 percent of summer months (compared to 11 percent of summer months under the baseline condition). Similar to the PowerMax Scenario, these impacts would become more severe during dry and critically dry water years. During wet water-years, the summer operation of Bass Lake under WaterMax Scenario would be similar to baseline conditions, and impacts on water-based recreational opportunities would be *significant*.

The proposed project scenarios would also result in impacts on water-based facilities during the early recreation season months, including April and May. Under PowerMax Scenario, lake levels during the early recreation season would drop below the 3,368 foot level during about 50 percent of April/May months (compared to 25 percent of April/May months under the baseline condition) and would drop below the 3,364 foot level during about 39 percent of these months (compared to 8 percent of April/May months under the baseline condition). Effects would be much less severe under WaterMax Scenario. Under this scenario, lake levels would drop below the 3,368 foot level

during about 32 percent of April/May months (compared to 25 percent of April/May months under the baseline condition) and would drop below the 3,364 foot level about 15 percent of these months (compared to 8 percent of April/May months under the baseline condition). During the September-October late recreation season period, the percentage of months during which lake levels would fall below the 3,368-foot and 3,364-foot elevations would be the same under both baseline and proposed project conditions.

As described more fully in the analysis of Bass Lake fishery impacts presented for Impact 4.2 in the Fisheries and Aquatic Biological Resources impact section, reductions in reservoir volumes under both operational scenarios could adversely affect the Kokanee fishery, resulting in reduced fishing opportunities. (Bass Lake's trout and warm-water fishery would be largely unaffected.) Together with impacts on the usability of boating facilities, impacts on the Kokanee fishery would further reduce fishing opportunities at Bass Lake.

Under both PowerMax and WaterMax Scenario, water-based recreational opportunities at Bass Lake, including boating, fishing, swimming, and jet skiing, would be significantly diminished (reduced by more than 10 percent) in normal, dry and critically dry water years. This impact is considered *significant*.

#### ***Manzanita Lake***

***Impacts Identified as Less Than Significant.*** Under project conditions, no effects on water-based recreational opportunities at Manzanita Lake would result from changes in mineral extraction or allocations of water supply because mining practices in the vicinity of the reservoir are not expected to change and no changes are expected in water supply contracts affecting the reservoir. Selection timber harvests, in addition to salvage harvests, could occur on approximately 100 acres of forested Watershed Lands near Bass and Manzanita Lakes under proposed project conditions. These harvests are unlikely to have any effect on existing water-based recreational opportunities and facilities at Manzanita Lake because harvest activities would occur away from recreational facilities at the lake.

Project-related changes in hydrologic operations, however, could result in adverse effects on water-based recreational opportunities at Manzanita Lake, although the effects would probably be minor. Because Manzanita Lake is operated as a powerhouse forebay and would continue to operate as forebay under the project operational scenarios, it is unlikely major changes would occur. Manzanita Lake would continue to be subject to extreme short duration fluctuations. Because proposed project variations in lake levels at Manzanita Lake would be similar to fluctuations under baseline conditions, impacts on water-based recreational opportunities are considered *less than significant*.

The potential for development of up to 246 EDUs at Manzanita Lake is considered potentially significant, although a general plan amendment would be required to accommodate this level of

development. If development of vacant lands did proceed under proposed project conditions, the increased demand for water-based recreational opportunities is not expected to reduce water-based recreational opportunities at Manzanita Lake because no capacity or congestion problems currently exist at the lake, and the increased demand is not expected to be large enough to create new problems. This impact is considered *less than significant*.

**Impacts Identified as Significant.** None.

#### ***Other Lakes and Reservoirs***

**Impacts Identified as Less Than Significant.** Other lakes in the Crane Valley license are Corrine Lake and Chilkoot Lake. Under project conditions, no effects on water-based recreational opportunities at either Corrine Lake or Chilkoot Lake would result from changes in land use development (including the San Joaquin Powerhouse No. 2 Land Area: 24 EDUs, and A.G. Wishon land area: 6 EDUs), timber harvest practices, mineral extraction, or allocations of water supply because land use practices in the vicinity of the reservoirs are not expected to change and no changes are expected in water supply contracts affecting either reservoir. Project-related changes in hydrologic operations, however, could result in adverse effects on water-based recreational opportunities at Corrine Lake and Chilkoot Lake Reservoir.

Under project operations, water surface elevations at Corrine Lake and Chilkoot Lake could vary from baseline conditions, but these variations would have little effect on water-based recreational opportunities, which are limited to fishing, at the lakes. (Neither lake has developed recreational facilities.) Currently, Chilkoot Lake provides fishing opportunities only during the first few weeks of the recreation season and is then drained for the rest of the summer as part of Pacific Gas and Electric Company normal operations; therefore, any adverse effects of project operations on fishing conditions would have little impact on fishing opportunities at Chilkoot Lake because these opportunities are already limited. This is reflected in the baseline conditions. Project-related effects on hydrologic operations at Corrine Lake would be similar to effects on Manzanita Lake, which is upstream of Corrine Lake. As discussed for Manzanita Lake, baseline and project operations would be similar, limiting any adverse effects on fishing opportunities at Corrine Lake. Consequently, impacts on water-based recreational opportunities at Chilkoot and Corrine Lakes are considered *less than significant*.

**Impacts Identified as Significant.** None.

#### ***Upper San Joaquin River Below North Fork Willow Creek***

**Impacts Identified as Less than Significant.** The North Fork of Willow Creek discharges into a boatable portion of the upper San Joaquin River, referred to by boaters (whitewater rafters and kayakers) as the “Horseshoe Bend Run.” Under project conditions, no effects on water-based recreational opportunities along the upper San Joaquin River downstream of North Fork Willow

Creek would result from changes in land use development, timber harvest practices, mineral extraction, or allocations of water supply because land use practices in the vicinity of the reservoir are not expected to change and no changes are expected in water supply contracts affecting the reservoir. Project-related changes in hydrologic operations, however, could result in adverse effects on water-based recreational opportunities along the San Joaquin River below North Fork Willow Creek, but flow levels in this portion of the San Joaquin River are primarily controlled by Southern California Edison, which owns and operates Redinger Reservoir as part of the Big Creek No. 4 license. A review of modeling data for PowerMax and WaterMax scenarios confirms that the project would have little effect on boating opportunities in the San Joaquin River downstream of North Fork Willow Creek, with end-of-month river flows during the April-July boating season virtually the same as baseline flows. Under both baseline and proposed project conditions, end-of-month flows would fall below 500 cfs only 2 percent of the 96 modeling months evaluated, and flows would fall below 1,000 cfs only 4 percent of the months. The project's impact on water-based recreational opportunities and facilities along the upper San Joaquin River is considered *less than significant*.

**Impacts Identified as Significant.** None.

***Other Rivers and Streams.*** From its headwaters at Chilkoot Lake, Chilkoot Creek flows approximately 4.5 miles to its confluence with North Fork Willow Creek, and then flows approximately 3.5 miles to Bass Lake. Below Bass Lake, North Willow Creek and South Fork Willow Creek merge and flow into the San Joaquin River. Under project conditions, no effects on water-based recreational opportunities at the creeks would result from changes in land use development, timber harvest practices, mineral extraction, or allocations of water supply because land use practices in the vicinity of the reservoirs are not expected to change and no changes are expected in water supply contracts affecting either reservoir. Project-related changes in hydrologic operations, however, could result in minor adverse effects on water-based recreational opportunities such as fishing along the creeks, because creek flows could vary from baseline conditions. The creeks above Bass Lake, however, are rocky and steep with several waterfalls, which make them unsafe for water-based recreation (USFS, 2000v) and limit their recreational use. Consequently, any adverse effects of project operations on water-based recreational opportunities provided by the creeks would be *less than significant* because the creeks above Bass Lake already provide limited recreational opportunities.

Below Bass Lake, fishing occurs on both North Fork Willow Creek, which is stocked for fishing, and South Fork Willow Creek. As discussed more fully in the analysis of Bass Lake fishery impacts presented for Impact 4.1 in the Fisheries and Aquatic Biological Resources impact section, a new owner could reduce releases into the creeks during the fishing season under both operational scenarios, adversely affecting the existing fisheries of both creeks and substantially reducing fishing opportunities along the creeks. Angler use of these creeks, however, is relatively light and numerous alternative trout fishing opportunities are available within the region. Consequently, the

reduction in water-based recreational opportunities provided by the creeks would be adverse but *less than significant* because the recreational opportunities provided by the creeks are not unique. (Refer to Mitigation Measure 4.1 for Impact 4.1 in the Fisheries and Aquatic Biological Resources impact section for a description of a measure to reduce adverse fishery impacts on North Fork Willow Creek and South Fork Willow Creek.)

#### **Bundle 17: Kerckhoff**

##### ***Kerckhoff (FERC 0096)***

##### ***Kerckhoff Reservoir***

**Impacts Identified as Less Than Significant.** Kerckhoff Reservoir is the only reservoir included within the Kerckhoff Bundle. Water-based recreational opportunities at Kerckhoff Reservoir include fishing, swimming, jet skiing, and boating. Under project conditions, no effects on water-based recreational opportunities or facilities would result from potential changes in land use development, timber harvest practices, mineral extraction, or allocations of water supply. Project-related changes in hydrologic operations, however, could result in effects on recreational opportunities at Kerckhoff Reservoir, although the effects would be minor. Kerckhoff Reservoir is presently operated as a Powerhouse Forebay and is subject to extreme short duration fluctuations. Because Kerckhoff Reservoir would continue to operate as a forebay under the proposed project operational scenarios, it is unlikely major changes would occur. Under the project, Kerckhoff Reservoir would continue to be subject to extreme short duration fluctuations. Because proposed project variations in lake levels at the reservoir would be similar to fluctuations under baseline conditions, impacts on water-based recreational opportunities caused by changes in hydrologic operations are considered *less than significant*.

Implementation of the project could facilitate the development of 91 EDUs on Watershed Lands near recreational facilities (as well as development of 2 EDUs near the Auberry Service Center). The increased population associated with these units could increase use of Kerckhoff Reservoir, including increased demand for fishing, boating, and jet skiing resources. Existing use of Kerckhoff Reservoir is limited, totaling 283 visits (16 associated with the campground and 267 associated with day use area at Smalley Cove) in 1996 (PG&E Co., 1999a). Consequently, the potential increase in demand due to a small amount of development near Kerckhoff Reservoir would not create capacity problems and would have little effect on water-based recreational opportunities provided by the reservoir. This impact is considered *less than significant*.

**Impacts Identified as Significant.** None.

##### ***San Joaquin River Below Kerckhoff Reservoir***

Transfer of the Kerckhoff license to another owner would have no effect on whitewater boating and fishing opportunities on the San Joaquin River. Current operation of the Kerckhoff license reduces

flows in the San Joaquin River between Kerckhoff Reservoir and Millerton Reservoir by as much as 6,835 cfs. This diversion typically reduces flow in the river to levels below those suitable for boating, thereby reducing or eliminating boating opportunities on the San Joaquin River. However, a new owner would continue to operate the license as it is now, in accordance with the terms and conditions of the existing FERC license. As such, whitewater boating and fishing opportunities would be similar to those that currently exist. That is, opportunities on the San Joaquin River, between the Kerckhoff Reservoir and Millerton Reservoir, would continue to be affected by diversions in the same way they are now. Furthermore, hydrologic modeling data for the license indicate that flows under the license would be similar to baseline flows for both operating scenarios.

The project would have no effect on recreation demand or use levels for the San Joaquin River and related recreational facilities below Kerckhoff Reservoir.

**Impacts Identified as Significant.** None.

#### **Bundle 18: Kings River**

##### ***Helms Pumped Storage (FERC 2735)***

##### ***Courtright Reservoir***

**Impacts Identified as Less Than Significant.** Water-based recreational opportunities at Courtright Reservoir include fishing, boating, and swimming. Under project conditions, no effects on water-based recreational opportunities would result from changes in land use development, timber harvest practices, mineral extraction, or allocations of water supply because land use practices in the vicinity of the reservoir are not expected to change and no changes are expected in water supply contracts affecting the reservoir. In addition, water surface elevations at Courtright Reservoir under proposed project hydrologic operations are expected to be similar to baseline conditions. Although the Helms Pumped Storage license is one of Pacific Gas and Electric Company's most flexible hydroelectric facilities, any future operator of the Helms Pumped Storage license will want to retain as much water as possible in the Courtright-Wishon reservoir complex to facilitate WaterMax Scenario recycling during the highest load/price periods through mid-September, regardless of any differences in management objectives. (This would apply to management objectives under both PowerMax and WaterMax Scenarios.) The amount of natural inflow is quite small relative to the amount of generation, so that this management objective dominates any other potential changes in operations. Consequently, no adverse impacts on water-based recreational opportunities or facilities are expected.

**Impacts Identified as Significant.** None.

### ***Wishon Reservoir***

***Impacts Identified as Less Than Significant.*** Water-based recreational opportunities at Wishon Reservoir include fishing, boating, and swimming. Under project conditions, no effects on water-based recreational opportunities at Wishon Reservoir would result from changes in mineral extraction or allocations of water supply because mining activities in the vicinity of the reservoir are not expected to change and no changes are expected in water supply contracts affecting the reservoir. Similarly, water surface elevations at Wishon Reservoir under proposed project hydrologic operations are expected to be similar to baseline conditions. Consequently, no adverse impacts on water-based recreational opportunities or facilities are expected from changes in hydrologic operations.

Selection timber harvests, in addition to salvage harvests, could occur on approximately 100 acres of forested lands near Wishon Reservoir under project conditions. These harvests are unlikely to have any effect on water-based recreational opportunities because harvests would occur away from water-based facilities. This impact is considered *less than significant*.

Implementation of the project could facilitate the development of 150 EDUs on Watershed Lands near recreational facilities. The increased population associated with these units could increase use of Wishon Reservoir, including increased demand for fishing, boating, and jet skiing resources. Based on recreational use survey data for Wishon Reservoir (discussed in the setting section for the Helms Pumped Storage project), existing recreational facilities at Wishon Reservoir are being used at levels well below design capacities. Consequently, the increase in demand due to potential development near Wishon Reservoir would not create capacity problems and would have little effect on water-based recreational opportunities provided by the reservoir. This impact is considered *less than significant*.

***Impacts Identified as Significant.*** None.

### ***Rivers and Streams***

***Impacts Identified as Less Than Significant.*** Downstream rivers potentially affected by divestiture-related changes in operation of the Helms Pumped Storage license include Helms Creek and North Fork Kings River between Courtright and Wishon Reservoirs. (Impacts on other downstream reaches of the North Fork Kings River and the Kings River are discussed for the Haas-Kings River license.)

As described in Section 4.6 Bundle 18: Kings River, no developed recreational facilities are located along Helms Creek and North Fork Kings River between Courtright and Wishon Reservoirs, and use levels are low. Limited fishing occurs along this 2.6-mile reach of the creek and river. Under the proposed project conditions, streamflow and fishing conditions would largely remain unchanged

from baseline conditions. Consequently, no adverse impacts on water-based recreational opportunities or facilities are expected. This impact is considered *less than significant*.

**Impacts Identified as Significant.** None.

#### ***Haas-Kings River (FERC 1988)***

##### ***Courtright Reservoir***

**Impacts Identified as Less Than Significant.** As described previously for the Helms Pumped Storage license, there would be no adverse impacts on recreational opportunities or facilities at Courtright Reservoir, which is jointly operated with the Haas-Kings River license.

**Impacts Identified as Significant.** None.

##### ***Wishon Reservoir***

**Impacts Identified as Less Than Significant.** As described previously for the Helms Pumped Storage license, there would be no adverse impacts on recreational opportunities or facilities at Wishon Reservoir, which is jointly operated with the Haas-Kings River license.

**Impacts Identified as Significant.** None.

#### ***North Fork Kings River Between Wishon and Black Rock Reservoirs***

**Impacts Identified as Less Than Significant.** Most of the recreation use of the North Fork Kings River between Wishon and Black Rock Reservoirs occurs immediately downstream of Wishon Dam, where Pacific Gas and Electric Company operates a group campground and fishing access area adjacent to the river. Under the proposed project conditions, streamflow and fishing conditions would largely remain unchanged from baseline conditions. Consequently, no adverse impacts on water-based recreational opportunities or facilities are expected.

**Impacts Identified as Significant.** None.

#### ***North Fork Kings River Below Black Rock Reservoir***

**Impacts Identified as Less Than Significant.** Use of the North Fork Kings River below Black Rock Reservoir to the confluence with Dinky Creek is mainly limited to anglers (USFS, 2000t), and no recreational facilities are located along the river. Downstream of the mouth of Dinky Creek to the main stem of the Kings River, the North Fork Kings River is used by anglers and is used extensively for private whitewater boating (i.e., by rafts, canoes, and kayaks). Under the proposed project conditions, streamflow and fishing conditions would largely remain unchanged from baseline conditions. Consequently, no adverse impacts on water-based recreational opportunities or facilities are expected.

**Impacts Identified as Significant.** None.

### ***Kings River Below North Fork Kings River***

**Impacts Identified as Less Than Significant.** Flows in the main fork of the Kings River downstream of its confluence with the North Fork Kings River, which is used for angling and commercial and non-commercial rafting, are largely dictated by natural conditions. The influence of flow releases from the Haas-Kings River license (in addition to releases from the Balch license) would have relatively minor effects on boating conditions and other uses of the Kings River. Additionally, proposed project hydrologic operations of Courtright, Wishon, and Black Rock Reservoirs would be similar to baseline conditions for both PowerMax and WaterMax Scenarios. Consequently, no adverse impact on recreational opportunities or facilities is expected from changes in hydrologic operations. This impact is considered *less than significant*.

**Impacts Identified as Significant.** Land use changes could affect recreational facilities along the main stem of the Kings River. Development could result in the construction of 3 EDUs in the Keller Ranch land area. These changes could result from divestiture or development of Pacific Gas and Electric Company's Keller Ranch property, which is used by commercial whitewater boating companies under a lease agreement as a parking and staging area for commercial boating activities on the main stem of the Kings River. If a new owner develops the Keller Ranch property, the use of the 75-vehicle parking area could be lost to the whitewater boating companies. Currently, there are no other existing sites in the area that are large enough to accommodate commercial operations (USFS, 2000t). Pacific Gas and Electric Company's proposed improvements to the Kings River Powerhouse parking area would accommodate some of the non-commercial whitewater boating activity along the river. However, the FERC does not expect the new parking area to accommodate commercial users. Therefore, loss of the Keller Ranch parking area because of lease termination or development would substantially affect commercial boating activities and reduce commercial whitewater boating opportunities on the Kings River. Consequently, the potential loss of the Keller Ranch property for use as a commercial whitewater boating staging and parking area is considered a *significant impact* on water-based recreational opportunities.

### ***Balch (FERC 0175)***

### ***Black Rock Reservoir***

**Impacts Identified as Less Than Significant.** Under project conditions, no effects on water-based recreational opportunities at Black Rock Reservoir would result from potential changes in land use development, timber harvest practices, mineral extraction, or allocations of water supply. In addition, water surface elevations at Black Rock Reservoir under proposed project hydrologic operations are expected to be similar to baseline conditions. Consequently, no adverse impacts on water-based recreational opportunities or facilities are expected.

**Impacts Identified as Significant.** None.

### ***Other Reservoirs and Lakes***

***Impacts Identified as Less Than Significant.*** Balch Afterbay, with only seven surface acres of water, is located 3.4 miles downstream of Black Rock Reservoir. The afterbay is fenced off to the public at the existing powerhouse tailrace and the diversion dam, and boating, swimming, and fishing are prohibited due to public safety concerns. No developed recreational facilities are located at Balch Afterbay. It is highly unlikely that FERC would allow a new owner to change restrictions on recreational use of the afterbay in the future. The project would have no effect on water-based recreational opportunities at Balch Afterbay.

***Impacts Identified as Significant.*** None.

### ***Rivers and Streams***

Project-related impacts on rivers downstream of the Balch license, including the North Fork Kings River and the main stem of the Kings River, have been previously described for the Haas-Kings River license.

### **Bundle 19: Tule River**

#### ***Tule River (FERC 1333)***

#### ***North Fork Middle Fork Tule River (NFMF) and Middle Fork Tule River***

***Impacts Identified as Less Than Significant.*** Transfer of the Tule River license to another owner would have no impact on whitewater boating opportunities or other recreational opportunities on either the North Fork Middle Fork (NFMF) Tule River or the Middle Fork Tule River (MFTR) under any project scenario. As discussed in the recreation setting section, the Tule River license does not include a storage reservoir, and no reservoirs are located upstream. Therefore, neither Pacific Gas and Electric Company nor any other owner could substantially alter flows in the NFMF Tule River or the Middle Fork Tule River. The project would continue to be operated as it is now, in accordance with the terms and conditions of the FERC license. As such, whitewater boating opportunities would be similar to those that currently exist. That is, whitewater boating opportunities on the NFMF Tule River would continue to be affected by diversions during April and May in the same way they are now. Similarly, no impacts would occur on water levels in the Wishon Pump Pool, which is located on the NFMF Tule River and is used by Wishon Campground visitors. Boating opportunities on the Middle Fork Tule River would remain unaffected. Since no impacts are expected, no mitigation is required.

No changes in hydrologic operations are expected under proposed project conditions; however, development (i.e., 45 EDUs) could occur on 32 acres of Watershed Land around the Hossack Creek Diversion Dam under project conditions. The potential for development to occur is not considered to have a significant impact; however, development of this property could increase the

recreational use of the NFMF Tule River near the property, including the Wishon Pump Pool, which is used for swimming and relaxing by visitors staying at the Forest Service's nearby Wishon Campground. Development on 32 acres, however, would create a relatively minor increase in use of river-based resources, and the use would be spread along the river. Furthermore, no capacity issues have been identified for the Wishon Pump Pool or other river resources. The project would have little to no effect on recreational use of the Middle Fork Tule River. The potential minor increase in the use of the NFMF Tule River resulting from the project is considered to have a *less than significant* impact on water-based recreational facilities.

**Impacts Identified as Significant.** None.

### **Bundle 20: Kern Canyon**

#### ***Kern Canyon (FERC 0178)***

##### ***Kern River***

**Impacts Identified as Less Than Significant.** No changes in hydrologic operations affecting the Kern River are expected under project conditions. Thus, transfer of the Kern Canyon license to another owner would have no impact on whitewater boating opportunities or other recreational opportunities on the lower Kern River. As discussed in the recreation setting section, storage available as part of the Kern River license is limited to a three-acre storage reservoir, which has little operational flexibility. Therefore, neither Pacific Gas and Electric Company nor any other owner could substantially alter flows in the Kern River. Operation of the Kern Canyon license typically reduces flows in the Kern River between the Kern Canyon Diversion Dam and powerhouse by up to 650 cfs. The diversion of 650 cfs likely reduces whitewater boating opportunities during the late spring and summer. The Kern Canyon license would continue to be operated as it is now, in accordance with the terms and conditions of the new FERC license. As such, whitewater boating opportunities would be similar to those that currently exist. That is, whitewater boating opportunities on the lower Kern River, between the Kern Canyon diversion dam and powerhouse, would continue to be affected by diversions in the same way they are now. Boating opportunities downstream of the Kern Canyon Powerhouse would remain unaffected.

Additionally, no additional development of FERC-licensed or Watershed Lands near the Kern River is likely under proposed project conditions, although the Kern County General Plan could allow the development of 30 EDUs on Watershed Lands. Similarly, no development or enhancement of recreation use-generating facilities at the Kern Canyon license is expected under the project. The project, therefore, would have no effect on use of water-based recreational facilities associated with the Kern River. This impact is considered *less than significant*.

**Impacts Identified as Significant.** None.

### **Impact to Entire Kings Crane-Helms Regional Bundle**

The Kings Crane-Helms Regional Bundle would experience the following impacts:

- Project-related changes in hydrologic operations and land use development could result in adverse effects on water-based recreational opportunities at lakes and rivers within the Kings Crane-Helms Regional Bundle. Additionally, land development is likely to occur near Bass Lake, Manzanita Lake, Kerckhoff Reservoir, and Wishon Reservoir under project conditions. However, if development of vacant lands did proceed under proposed project conditions, the increased demand for water-based recreational opportunities is not expected to exacerbate congestion at the lakes.
- Under both PowerMax and WaterMax Scenarios, water-based recreational opportunities at Bass Lake, including boating, fishing, swimming, and jet skiing, would be significantly diminished in normal, dry and critically dry water years.
- The divestiture or development of Pacific Gas and Electric Company's Keller Ranch property could displace an area used by commercial whitewater boating companies under a lease agreement as a parking and staging area for commercial boating activities on the main stem of the Kings River. If the commercial companies could no longer use the Keller Ranch property, commercial whitewater boating opportunities would be substantially affected.
- The project would have a *significant impact* on water-based recreational opportunities and facilities within the Kings Crane-Helms Regional Bundle because of adverse effects on boating, fishing, and swimming opportunities at Bass Lake and potentially adverse effects on whitewater boating opportunities on the Kings River.

### 4.6.8.6 Evaluation of Impact 6-1 to Entire System

Significant project-related impacts on water-based recreational opportunities are identified for each of the 20 bundles addressed above. The range of impacts identified include the potential loss of access to important sites for water-based recreation, alterations in streamflow that would significantly affect the use of that stream for activities such as boating or angling, significant reductions in reservoir recreational use due to project-related changes in reservoir operation, and significant reductions in water-based recreational opportunities due changes in land use or timber harvest on Pacific Gas and Electric Company lands. These effects, in large part, are quite localized in that their extent is limited to a specific element such as a particular reservoir or stream reach. The magnitude of these effects varies depending on the type of project element, the local and regional importance of the activities it supports, and the magnitude of project-related changes.

### 4.6.8.7 Impact 6-1: to Mitigation Measures

#### Mitigation Measures Proposed as Part of the Project

For all five watershed regional bundles addressed in this section, there are no mitigation measures proposed by the project applicant for potential recreation impacts associated with the proposed transfer of ownership.

#### Mitigation Measures Identified in this Report

##### *Shasta Regional Bundle*

**Mitigation Measure 6-1.a:** Access issues, Bundle 1: Prior to or concurrent with the transfer of title, the new owner shall by binding written instrument (binding upon successors in interest) agree

to continue to allow public access across the Hat Creek Watershed Lands that provide access to Hat Creek.

**Mitigation Measure 6-1.b:** Access issues, Bundle 2: Prior to or concurrent with the transfer of title, the new owner shall by binding written instrument (binding upon successors in interest) agree to continue to allow public access across Project Lands that provide access to the Pit River south of the Pit 1 Forebay Dam.

**Mitigation Measure 6-1.c:** Access issues, Bundle 2: Prior to or concurrent with the transfer of title, the new owner shall by binding written instrument (binding upon successors in interest) agree to continue to allow public access across Project Lands that provide access to the Pit River in the vicinity of Fall River Mills.

**Mitigation Measure 6-1.d:** Reduced lake level issues, Bundle 2: Prior to or concurrent with the transfer of title, the new owner shall by binding written instrument (binding upon successors in interest) agree to maintain lake levels at Lake Britton above the 2,747-feet above sea level from Memorial Day to Labor day unless a drought year has been identified.

**Mitigation Measure 6-1.e:** Access issue, Bundle 2: Prior to or concurrent with the transfer of title, the Project Lands shall become burdened by a recorded non-exclusive easement requiring the new owner and successors-in-interest to continue to allow public access across the Lake Britton Watershed Lands for the Pacific Crest Trail and the Department of Parks and Recreation campground on Lake Britton.

**Mitigation Measure 6-1.f:** A river corridor management plan to preserve public access for recreation purposes over Pacific Gas and Electric Company Watershed Lands between Cassel Bridge and the upper end of Lake Britton (through and including Section 12) shall be developed in consultation with the BLM, Pit River Tribe, and members of the public prior to or concurrent with the transfer of title. Prior to or concurrent with the transfer of title, the new owner (or successors-in-interest) shall by binding written instrument, agree to allow continued access to Lake Britton Watershed Lands in accordance with the completed plan.

**Mitigation Measure 6-1.g:** A river corridor management plan to preserve public access for recreation purposes over Pacific Gas and Electric Company Watershed Lands between Fall River Mills and the Pit 1 Forebay shall be developed in consultation with the BLM, Pit River Tribe, and members of the public prior to the or concurrent with the transfer of title. Prior to or concurrent with the transfer of title, the new owner (and successors-in-interest) shall, by binding written instrument, agree to allow continued access to non-FERC Lands along the Fall River in accordance with the completed plan.

***DeSabra Regional Bundle***

***Mitigation Measure 6-1.h:*** Access Issue, Bundle 5: Prior to or concurrent with transfer of title, the new owner shall by binding written instrument (binding upon successors-in-interest) agree to allow continued public access to the Hamilton Branch Watershed Lands for recreational purposes.

***Mitigation Measure 6-1.i:*** Access Issues, Bundle 6: Prior to or concurrent with transfer of title, the new owner (and successors-in-interest) shall, by binding written instrument agree to allow continued public access to the North Fork of the Feather River in sections 17 and 19.

***Mitigation Measure 6-1.j:*** Reduced lake levels issues, Bundle 7: Prior to or concurrent with the transfer of title, the new owner shall by binding written instrument (binding upon successors-in-interest) agree to maintain lake levels at Bucks Lake above 5,135-feet above sea level from Memorial Day to Labor Day unless a drought year has been identified for the river basin by the Department of Water Resources.

***Drum Regional Bundle***

***Mitigation Measure 6-1.k:*** Yuba River flow issues, Bundle 9: Prior to or concurrent with the transfer of title, the new owner shall by binding written instrument (binding upon successors-in-interest) agree to maintain flows in the Yuba River below Englebright Dam above 700 cfs for the months of October, November, and December and to work with the CDFG and other stakeholders to ensure that flows are maintained for the unique angling experience in this location.

***Mitigation Measure 6-1.l:*** Eel River recreation flows, Bundle 10: Prior to or concurrent with the transfer of title, the new owner shall by binding written instrument (binding upon successors-in-interest) agree to adopt and maintain a recreation resource flow release requirement from the Cape Horn Dam of a continuous 24 hour flow of 500 cfs for a continuous period of nine days starting on the Saturday following the last seasonal week of 1000 cfs flows on the Middle Fork Eel River above the confluence with the main Eel River. The timing of the release shall be scheduled to provide 500 cfs at Hearst by 8:00 AM, and should continue for a nine day period ending no earlier than 4:00 PM on the ninth day at Hearst.

***Mitigation Measure 6-1.m:*** Eel River recreation flows, Bundle 10: Prior to or concurrent with the transfer of title, the new owner shall by binding written instrument (binding upon successors-in-interest) agree to a recreation resource flow release requirement from Scott Dam of a continuous 24 hour flow of 700 cfs for a continuous period of nine days starting on the Saturday following the last seasonal week of 1000 cfs flows on the Middle Fork Eel River above the confluence with the main Eel River. The timing of the release shall be scheduled to provide 700 cfs at Soda Creek by 8:00 AM, and should continue for a nine day period ending no earlier than 4:00 PM on the ninth day at Van Arsdale Reservoir.

**Mitigation Measure 6-1.n:** Eel River flows, Bundle 10: Prior to or concurrent with the transfer of title, the new owner shall by binding written instrument (binding upon successors-in-interest) agree to develop and maintain in an updated condition publicly available flow forecast information for those portions of the Eel River influenced by project operations. The update lead time and reliability of forecasted information shall be aimed at providing boaters, and other members of the river-using public with functionally relevant trip planning information.

**Mitigation Measure 6-1.o:** Lake Spaulding lake levels issue, Bundle 11: Prior to or concurrent with the transfer of title, the new owner shall by binding written instrument (binding upon successors-in-interest) agree to maintain Lake Spaulding lake levels during months where boat recreation takes place at baseline conditions to ensure that water-based recreation that relies on the boat ramp is not diminished.

**Mitigation 6-1.p:** Kidd Creek streamflows, Bundle 11: Prior to or concurrent with the transfer of title, the new owner shall by binding written instrument (binding upon successors-in-interest) agree to make formal the current informal agreements with the CDFG pertaining to Kidd Creek stream flows such that a 5 cfs minimum flow would continue under new ownership.

**Mitigation Measure 6-1.q:** South Yuba River flows below Spaulding Dam, Bundle 11: Prior to or concurrent with the transfer of title, the new owner (and successors-in-interest) shall by binding written instrument agree to adopt and maintain minimum flow release requirements at Spaulding Dam of 10 cfs during the months of June, July, August and September.

**Mitigation Measure 6-1.r:** South Yuba River flows below Spaulding Dam, Bundle 11: Prior to or concurrent with the transfer of title, the new owner shall by binding written instrument (binding upon successors-in-interest) agree to adopt and maintain minimum flow release requirements at Spaulding Dam of 700 cfs for one weekend in the month of June for normal and below normal years, as determined by the Department of Water Resources.

**Mitigation Measure 6-1.s:** Fordyce Creek flows below Fordyce Dam, Bundle 11: Prior to or concurrent with the transfer of title, the new owner shall by binding written instrument (binding upon successors-in-interest) agree to adopt and maintain minimum flow release requirements pre-scheduled on weekends in normal and below normal water years at Fordyce Dam to include 600 cfs for two consecutive weekends (at least 8:00 AM to 6:00 PM) in the summer months and one weekend in the late season, and 200 cfs on one weekend in the late season months.

**Mitigation Measure 6-1.t:** Chili Bar Operations, Bundle 12: Prior to or concurrent with the transfer of title, the new owner shall by binding written instrument (binding upon successors-in-interest) agree to operate the Chili Bar license as a regulating facility integrated with the rest of SMUD's South Fork of the American River facilities. The purpose of the agreement shall be to maximize the storage capacity of Chili Bar Reservoir, avoid unnecessary daily spills at the dam and lost power production at the Chili Bar Powerhouse, and moderate the hourly/daily release pattern

downstream to mitigate expected impacts on water based recreational uses and opportunities. The agreement shall consider water and streamflow activities, other instream resource issues.

#### ***Motherlode Regional Bundle***

***Mitigation Measure 6-1.u:*** Recreational facilities, Bundle 13: Prior to or concurrent with the transfer of title, the new owner shall by binding written instrument (binding upon successors-in-interest) agree to upgrade access and parking facilities, and sanitary facilities for the Electra Afterbay and powerhouse area to ensure the full water-based recreational use potential of these lands and water bodies.

***Mitigation Measure 6-1.v:*** Recreational facilities, Bundle 13: Prior to or concurrent with the transfer of title, the new owner and successors-in-interest shall by binding written instrument agree to allow continued recreational use of the lands in the vicinity of the Highway 49 bridge or Middle Bar; with access suitable to Bureau of Land Management and Department of Boating and Waterways for the purposes of providing adequate whitewater boating.

***Mitigation Measure 6-1.w:*** Recreational opportunities, Bundle 13: Prior to or concurrent with the transfer of title, the new owners shall by binding written instrument (binding upon successors-in-interest) agree to reserve for unimproved recreational activities and opportunities the undeveloped FERC Licensed Lands at Upper and Lower Bear River Reservoirs.

***Mitigation Measure 6-1.x:*** Trail access, Bundle 13: Prior to or concurrent with the transfer of title, the new owner shall by binding written instrument (binding upon successors-in-interest) agree to improve the portage trail between Lower and Upper Bear River Reservoirs to provide safe access when the dam is spilling and to maintain that trail so as to provide a minimum of safe but primitive access (including the portaging of small watercraft) to the Upper Bear River Reservoir.

***Mitigation Measure 6-1.y:*** Recreational facilities, Bundle 13: Prior to or concurrent with the transfer of title, the new owner shall by binding written instrument (binding upon successors-in-interest) agree to provide for the continued development of recreational facilities consistent with the present recreational facilities whether or not through a lease agreement with the Bear River Lake Resort (or any subsequent lessee) and to review on a recurrent 5-year basis capacity and facility conditions with the USFS to ensure ongoing conformance with reservoir-wide recreation resource values.

***Mitigation Measure 6-1.z:*** Public access, Bundle 13: Prior to or concurrent with the transfer of title, the new owner shall by binding written instrument (binding upon successors-in-interest) agree to maintain public access to the FERC Licensed Lands along Panther and Tiger Creeks.

***Mitigation Measure 6-1.aa:*** Facilities maintenance, Bundle 13: Prior to or concurrent with the transfer of title, the new owner shall by binding written instrument (binding upon successors-in-

interest) agree to maintain the recreational facilities at Upper and Lower Blue Lake Reservoirs, and Twin Lake Reservoir.

**Mitigation Measure 6-1.bb:** Land use, Bundle 13: Prior to or concurrent with the transfer of title, the new owner shall by binding written instrument (binding upon successors-in-interest) agree to limit land uses and resource activities on Watershed Lands at Upper Blue Lake, Twin Lake, Meadow Lake, and Upper Bear River Reservoirs, and in the eastern arm of Lower Bear River Reservoir to wilderness-compatible types and levels.

**Mitigation Measure 6-1.cc:** Public access, Bundle 13: Prior to or concurrent with the transfer of title, the new owner shall by binding written instrument (binding upon successors-in-interest) agree to allow public access on Watershed Lands along Panther and Tiger Creeks, within 50 feet of the edge of the channel-edge.

**Mitigation Measure 6-1.dd:** Public access, Bundle 13: Prior to or concurrent with transfer of title, the new owner shall by a binding written instrument (binding upon successors-in-interest) agree to allow public access to Watershed Lands upstream of the Tiger Creek Afterbay.

**Mitigation Measure 6-1.ee:** Mokelumne River Bundle: Prior to or concurrent with the transfer of title, the new owner and successors-in-interest shall by a binding written instrument agree to modify the existing diversion structure located on the Watershed Lands upstream of the Tiger Creek Afterbay to a condition that provides for safe passage for whitewater boating (portage or otherwise) to the satisfaction of the United States Forest Service, Bureau of Land Management, and California Department of Boating and Waterways.

**Mitigation Measure 6-1.ff:** Public access, Bundle 13: Prior to or concurrent with transfer of title, the new owner shall by binding written instrument (binding upon successors-in-interest) to allow public access to the channel and the riparian zone of those portions of Watershed Lands located on, or immediately adjacent to, the main and North Fork Mokelumne Rivers between the Electra Diversion Dam and Electra powerhouse FERC Licensed Lands.

**Mitigation Measure 6-1.gg:** Strawberry Reservoir operations, Bundle 14: Prior to or concurrent with the transfer of title, the new owner shall agree to make formal (and binding upon successors-in-interest) all informal agreements on the operational regime of Strawberry Reservoir to ensure that present operations in the months of May through September be continued in the future to maintain present reservoir recreational opportunities.

**Mitigation Measure 6-1.hh:** Relief Reservoir operations, Bundle 14: Prior to or concurrent with the transfer of title, the new owner shall agree to implement a recreation resource flow release requirement (binding upon successors-in-interest) from Relief Reservoir that limits flows to under 50 cfs for at least 30 percent of the days of July and August.

**Mitigation Measure 6-1.ii:** Public access, Bundle 14: Prior to or concurrent with transfer of title, the new owner shall by binding written instrument (binding upon successors-in-interest) agree to manage Watershed Lands south of the developed portion of Kennedy Meadows Resort in accordance with the Forest Plan and Wild and Scenic River recommendations for the benefit of the recreating public.

**Mitigation Measure 6-1.jj:** Public access, Bundle 14: Prior to or concurrent with transfer of title, the new owner shall by binding written instrument (binding upon successors-in-interest) agree to allow public access to a 1/4 mile wide corridor along the Middle Fork Stanislaus River and Deadman Creek to provide for the ongoing benefits of the recreating public and to facilitate the maintenance of Wild and Scenic River “Outstandingly Remarkable Values.”

**Mitigation Measure 6-1.kk:** Land use, Bundle 14: Prior to or concurrent with the transfer of title, the new owner shall by binding written instrument (binding upon successors-in-interest) agree that land use and land management practices on the Spring Gap Powerhouse FERC Licensed Lands should be compatible with the present USFS management objectives on adjacent USFS lands and that should those management objectives become more restrictive in the future for enhancing public resource values, the practices on Project Lands shall change accordingly.

**Mitigation Measure 6-1.ll:** Public access, Bundle 14: Prior to or concurrent with transfer of title, the new owner shall by binding written instrument (binding upon successors-in-interest) agree to allow public access to the existing Sand Bar Flat to Beardsley trail, the footbridge, and for access to the river from the trail.

**Mitigation Measure 6-1.mm:** Public access, Bundle 14: Prior to or concurrent with transfer of title, the new owner shall by binding written instrument (binding upon successors-in-interest) agree to allow public access to the Stanislaus River and the Middle Fork Stanislaus River, as well as the fishing access trail near the powerhouse for access to the Stanislaus River and the Middle Fork Stanislaus River.

### ***Kings Crane-Helms Regional Bundle***

**Mitigation Measure 6-1.nn:** Reservoir operations, Bundle 16: Prior to or concurrent with the transfer of title, the new owner shall by binding written instrument (binding upon successors-in-interest) agree to continue requesting from the Bureau of Reclamation annual variances of the Miller-Lux Agreement to keep Bass Lake at higher elevations during summer months in order to benefit recreational opportunities.

**Mitigation Measure 6-1.oo:** Fisheries, Bundle 16: Implement Mitigation Measure 4.2h pertaining to Crane Valley Bundle fishery resources (see Section 4.2).

**Mitigation Measure 6-1.pp:** Whitewater boating, Bundle 18: Prior to or concurrent with the transfer of title, the new owner shall by binding written instrument (binding upon successors-in-

interest) agree to continue to allow commercial whitewater boating activities on the Keller Ranch property or, prior to or concurrent with the transfer of title, the Keller Ranch property shall be conveyed to the Forest Service or an appropriate state or federal agency with a provision that the land shall be managed to support recreation use and opportunities along the Kings River.

#### **4.6.8.8 Impact 6-1: Level of Significance After Mitigation**

Implementation of the above mitigation measures would reduce Impact 6-1 to *less than significant*.

#### **4.6.9 IMPACT 6-2: IMPACT, ANALYSIS, AND MITIGATION MEASURES**

##### **Impact 6-2: The project would substantially diminish existing land-based recreational opportunities or the condition of land-based recreational facilities. (Significant)**

The divestiture of lands owned or managed by Pacific Gas and Electric Company could diminish existing land-based recreational opportunities in four ways: 1) by reducing or eliminating access to Pacific Gas and Electric Company lands or other private or public lands; 2) by facilitating development of Pacific Gas and Electric Company lands; 3) by leading to changes in timber harvest practices on Pacific Gas and Electric Company lands; or 4) by resulting in changes in mineral extraction activities on Pacific Gas and Electric Company lands. Changes in hydrologic operations or in the allocation of water supply would have no effect on land-based recreational opportunities.

Land-based recreation impacts would primarily occur on lands outside of the FERC license boundary for each license because lands within FERC boundaries are generally required by FERC to be available to the public for recreational use. FERC requires licensees to provide the public with reasonable free access to license waters and adjacent land for recreational purposes. Similarly, changes in land use, timber harvest, and mineral extraction that would displace recreational uses on lands within FERC boundaries would require a license amendment. These requirements, however, do not apply to lands outside of the FERC license boundary.

The following assessment identifies impacts on land-based recreational opportunities and recreational facilities throughout the five watershed areas.

##### **4.6.9.1 Impact 6-2: Shasta Regional Bundle**

###### **Bundle 1: Hat Creek**

###### ***Hat Creek 1 and 2 (FERC 2661)***

Approximately 1,256 acres of Watershed Lands are associated with the Hat Creek 1 and 2 license in parcels contiguous to the FERC license boundary along Baum Lake and between Cassel Road and Crystal Lake to provide vehicular and foot access to Crystal Lake. In addition, there are 1,416 acres of Watershed Land associated with the license that are not contiguous to the FERC license boundary.

Under project conditions, no land-based recreational facilities would be affected by changes in hydrologic operations. Parcels in the vicinity of Hat Creek 2 powerhouse are considered subject to potential mining activities. Selection harvests, in addition to salvage timber harvest, could occur on approximately 100 acres of forested Watershed Lands under proposed project conditions. Additionally, the development of up to 594 EDUs is possible under project conditions. Should development of Watershed Lands occur, public access to these lands would be terminated, resulting in the loss of Watershed Lands for dispersed recreation purposes.

***Impacts Identified as Less Than Significant.*** Watershed Lands associated with Hat Creek 1 and 2 provide dispersed recreational opportunities such as fishing, hunting, hiking, and bird watching. The Pacific Crest Trail crosses two watershed parcels that are adjacent to Baum Lake. Pacific Gas and Electric Company and the USFS have an agreement providing that the USFS is responsible for operation and maintenance of the Pacific Crest Trail on these parcels. Actual recreation use of the Pacific Crest Trail in this area is very low in terms of number of users. Due to the low density of current users and the nearby availability of dispersed recreation options, potential restrictions in access resulting from the project would have a *less than significant* impact on dispersed recreation.

Potential timber harvest on Bundle 1 Watershed Lands is expected to consist of salvage on about 100 acres. This is a relatively small area that would be subject to periodic salvage. The impact of this operation on dispersed recreation would be *less than significant* due to low usage in the area and the availability of nearby recreation options.

Mining could occur on Bundle 1 Watershed Lands. Such operations would be localized and would not result in a significant impact on land-based recreation due to low recreational usage in Bundle 1 and available recreational options.

***Impacts Identified as Significant.*** None.

### **Bundle 2: Pit River**

#### ***Pit 1 (FERC 2687)***

##### ***Pit River***

Approximately 6,832 acres of Watershed Lands are associated with the Pit 1 license in parcels contiguous to the FERC license boundary located at the west end of the Pit 1 license that provide pedestrian access to Fall River. This parcel is located on Dana Road, near Rick's Fishing Lodge. In addition, there are 1,831 acres of Watershed Land associated with the license that are not contiguous to the FERC license boundary.

Under proposed project conditions, no land-based recreational facilities would be affected by changes in hydrologic operations. Parcels in the vicinity of Pit 1 powerhouse are considered subject to potential mining activities. Salvage harvest could occur on approximately 50 acres of

forested Watershed Lands under proposed project conditions. Additionally, the development of up to 714 EDUs is possible under project conditions. Should development of Watershed Lands occur, public access to these lands would be terminated, resulting in the loss of Watershed Lands for dispersed recreation purposes.

***Impacts Identified as Less Than Significant.*** Pacific Gas and Electric Company has voluntarily allowed the Pit River Pioneers to hold a three-day Memorial Day campout on Pacific Gas and Electric Company land. The new owner of the license could discontinue this campout. There are other locations where this group could arrange to hold the camp-out. Given the availability of alternate locations, the loss of these lands for group camping would be *less than significant*.

An agreement to supply water to Fall River Mills Community Services District will not result in any impacts to recreation because it expires with the FERC license and will not be altered by sale of the proposed project.

Construction of housing and logging of forests on areas identified in the land use projections and forestry section will have a *less than significant* impact on the few land-based recreational opportunities and facilities in the area. This is because they will be subject to intermittent land use incompatibilities such as noise, visual effects, and dust from logging and there is a low level of land-based recreation in this area.

Pacific Gas and Electric Company has allowed various groups including Boy Scouts and church groups to camp on license lands. The new owners may not allow this camping to continue. There are other locations in the area where these groups could arrange to camp. Given the availability of alternative locations, the loss of these lands for group camping would have a *less than significant* impact on these recreational opportunities.

***Impacts Identified as Significant.*** None.

#### ***Fall River***

***Impacts Identified as Less Than Significant.*** Watershed lands in this area have limited access and are on steep terrain offering few recreational opportunities. Loss of use of these lands for recreation activities due to denial of public access would be *less than significant*.

There are no land-based recreational facilities in this portion of the license. Therefore the proposed project will not result in any impacts on land-based recreational facilities or opportunities in this license.

***Impacts Identified as Significant.*** None.

### ***Pit 3, 4, and 5 (FERC 0233)***

#### ***Lake Britton***

Approximately 1,770 acres of Watershed Lands are associated with the Pit 3, 4, and 5 license in parcels contiguous to the FERC license boundary located centered on several parcels located east of Lake Britton, south of Highway 299, along the Pit River. Pacific Gas and Electric Company maintains an access road and parking area that provides access to Hat Creek, just below the Hat No. 2 powerhouse. Parcels of Watershed Land are also located along various points of the Pit River between Pit 1 powerhouse and Lake Britton; the west end of Lake Britton; the westerly end of the Pit 3, 4 and 5 license; between the Pit 5 Open Conduit Reservoir and the Pit 5 Intake Dam; and the McArthur Swamp area, portions of which are included within the Pit 3, 4, and 5 license boundary. In addition, there are 10,210 acres of Watershed Land associated with the license that are not contiguous to the FERC license boundary.

Under proposed project conditions, no land-based recreational facilities would be affected by changes in hydrologic operations. Parcels in the vicinity of Pit 3 Powerhouse are considered subject to potential mining activities. Selection harvests, in addition to salvage harvest, could occur on approximately 10,500 acres of forested Watershed Lands under proposed project conditions. Additionally, the development of a total of 1,017 EDUs is possible in the Pit 3, 4, and 5 license under proposed project conditions. Should development of Watershed Lands occur, public access to these lands would be terminated, resulting in the loss of Watershed Lands for dispersed recreation purposes.

***Impacts Identified as Less Than Significant.*** Development or denial of access to Watershed Lands near Lake Britton associated with this license could eliminate dispersed recreation that currently occurs on these lands. Due to the large amount of publicly available open space in surrounding National Forests that could provide alternative similar recreation experiences and the moderate amount of dispersed recreation occurring in this area, this impact is considered *less than significant*.

According to the timber management analysis presented in Section 4.2, the project will not result in any new timber harvest other than salvage in the vicinity of Lake Britton. Since the salvage that could occur will be on an intermittent basis and there are other similar recreational opportunities available in the area this impact is considered *less than significant*.

There is a potential for mining of Diatomite to occur on Watershed Lands located at the southern end of Lake Britton. Three locations were identified where mining could occur. None of these locations is in close proximity to an existing land-based recreation facility. Mining at these sites would not affect access to land-based recreational opportunities or facilities. The quality of land-based dispersed recreation could be affected in the vicinity of the mines, but this impact would be localized, and there are large areas of land where dispersed recreation could occur to replace the affected areas. This impact is considered *less than significant*.

The hydrology modeling for the existing condition, and PowerMax Scenario did not identify any months at which Lake Britton would exceed the maximum threshold (2,756.7 feet, Pacific Gas and Electric Company, 1999a) beyond which flooding of land-based recreational facilities would occur during the months from May through September for the 96 months analyzed. Therefore, the project would have no impact related to flooding of land-based recreational facilities at Lake Britton.

The WaterMax Scenario for Lake Britton was not analyzed because this scenario is not expected to alter lake levels substantially. See Chapter 4.3 for a more detailed discussion of this issue.

***Impacts Identified as Significant.*** A parcel of land with both timber harvest and land development potential, located at the southwest end of Lake Britton, would experience the most impact as a result of loss of access for dispersed recreation. The land is gently sloped, and most likely would be harvested for timber after which it could be developed as a recreation resort or private summer homes. Because this area offers lake access, Pacific Crest Trail hiking activity, and dispersed recreational opportunities that would be lost, the impact would be *significant*, requiring mitigation.

#### ***Pit River***

***Impacts Identified as Less Than Significant.*** Pacific Gas and Electric Company owns Watershed Lands near FERC-license 0233 facilities that are used by deer and bear hunters in season; however, this area is not known to experience a high level of dispersed recreation. Some dispersed camping has been observed in this area. The Pacific Gas and Electric Company Watershed Lands in this area are steeply sloped, preventing high amounts of use. In addition, there are large tracts of other public lands in the area that could accommodate dispersed recreation use. Project-related changes in land use, timber harvest, or mineral excavation could affect dispersed recreation on Bundle 2 Watershed Lands. This impact, however, is considered *less than significant* because the recreational opportunities on this land are not considered important or unique.

***Impacts Identified as Significant.*** The Pacific Crest Trail crosses the Pit River on the Pit 3 Dam. There is no formal easement or agreement with Pacific Gas and Electric Company to allow hikers to cross at this point. A new owner(s) could deny access along this route. Hiking the Pacific Crest Trail is a unique recreational activity that could be broken up into two separate segments by the project. This impact would be considered *significant*.

#### ***McCloud-Pit (FERC 2106)***

Approximately 213 acres of Watershed Lands are associated with the McCloud-Pit license in parcels contiguous to the FERC license boundary but most of the Pit River in this area is inaccessible due to the steep canyon of the river. In addition, there are 6,343 acres of Watershed Land associated with the project that are not contiguous to the FERC license boundary. The majority of the Watershed Lands associated with the McCloud-Pit project abut private lands.

Under proposed project conditions, no land-based recreational facilities would be affected by changes in hydrologic operations or mineral extractions. Selection harvests, in addition to salvage harvest, could occur on approximately 6,600 acres of forested Watershed Lands under proposed project conditions. Additionally, the development of a total of 95 EDUs is possible under proposed project conditions. Should development of Watershed Lands occur, public access to these lands would be terminated, resulting in the loss of Watershed Lands for dispersed recreation purposes.

### ***McCloud Reservoir***

***Impacts Identified as Less Than Significant.*** A small portion of Watershed Land that surrounds the McCloud Reservoir Diversion Dam at the south end of the McCloud Reservoir accommodates dispersed recreation in this area. Recreational use of this area is low and alternative opportunities for dispersed recreation are readily available nearby. Because the area supports neither important nor unique land-based recreational opportunities or facilities, the impact of future development of this area under proposed project conditions is considered to have a *less than significant* impact. In addition, these Watershed Lands do not provide access to important or unique land-based recreational resources, so this too is considered a *less than significant* impact.

***Impacts Identified as Significant.*** None.

### ***McCloud River***

***Impacts Identified as Less Than Significant.*** There are few land-based recreational facilities and opportunities in Watershed Lands along the McCloud River. None are considered unique to the area in that large tracts of public land are available nearby that can, for example, accommodate deer hunting. As such, the impact of future development of this area under proposed project conditions is considered to have a *less than significant* impact. In addition, these Watershed Lands do not provide access to important or unique land-based recreational resource, so this too is considered a *less than significant* impact. Given the low level of use and the availability of large tracts of public land that can accommodate deer hunting in the region, loss of this land for public recreational opportunities would be considered *less than significant*.

***Impacts Identified as Significant.*** None.

### **Bundle 3: Kilarc-Cow Creek**

Approximately 272 acres of Watershed Land are associated with the Kilarc-Cow Creek license in parcels contiguous to the FERC license boundary, but none of the Watershed Lands associated with the project provide formal or informal recreational opportunities, as all lands surrounding Pacific Gas and Electric Company's Watershed Lands are privately owned precluding public access to these lands. In addition, there are 2,218 acres of Watershed Land associated with the license that are not contiguous to the FERC license boundary.

Under project conditions, no land-based recreational facilities would be affected by changes in hydrologic operations or mineral extractions. Selection harvest, in addition to salvage harvest, could occur on approximately 900 acres of forested Watershed Lands under proposed project conditions. Additionally, the development of a total of 20 EDUs is possible under proposed project conditions. However as stated above, all Watershed Lands are surrounded by private lands, and development would most likely not result in the loss of Watershed Lands for dispersed recreation purposes.

***Kilarc-Cow Creek (FERC 0606)***

***Impacts Identified as Less Than Significant.*** Because all lands surrounding the license are privately owned and present no public access, Watershed Lands associated with the Kilarc-Cow Creek bundle do not provide any land-based recreational opportunities or facilities. Therefore, the project would have no effect on land-based recreational opportunities or facilities.

There are few land-based recreational opportunities in the Kilarc-Cow Creek area. There is a FERC-required day use and picnic area just north of Kilarc Reservoir. This area is not part of the project, but depending on the precise location of land use changes such as development or increased salvage logging that could occur on Watershed Lands, there could be a temporary or long-term reduction of the quality of the scenic resources in the vicinity of the day use and picnic. The day use/picnic area was estimated to have had 750 visits in 1996. Since access to the recreation facility would be maintained, and the recreation facility would continue to provide recreational opportunities to the low level of users (versus loss of facilities as stated in the Analytical Methods section), this impact would be *less than significant* despite the potential reductions in the quality of the recreational experience.

***Impacts Identified as Significant.*** None.

**Bundle 4: Battle Creek**

Approximately 2,238 acres of Watershed Lands are associated with the Battle Creek license in parcels contiguous to the FERC license boundary, but because of lack of access, there are minimal recreational opportunities on the Watershed Lands in the Battle Creek license area. In the area of Volta Powerhouses (as a part of the Battle Creek license), there are several parcels in which Battle Creek license canals are located. In addition, there are 3,840 acres of Watershed Land associated with the project that are not contiguous to the FERC license boundary. In the vicinity of Inskip powerhouse (not a part of the Battle Creek license), there are several parcels of Watershed Lands in which canals are located. Due to lack of access because of private ownership, these lands are not accessible to the public so there are no recreational opportunities in this area.

Under proposed project conditions, no land-based recreational facilities would be affected by changes in hydrologic operations or mineral extractions. Selection harvests, in addition to salvage harvest, could occur on approximately 2,400 acres of forested Watershed Lands under proposed

project conditions. Additionally, the development of a total of 596 EDUs is possible under proposed project conditions. Should development of Watershed Lands occur, public access to these lands would be terminated, resulting in the loss of Watershed Lands for dispersed recreation purposes.

### ***Battle Creek (FERC 1121)***

***Impacts Identified as Less Than Significant.*** There are few land-based recreational opportunities in this area and low usage due, in part, to a lack of public access. Further reductions in access due to the project would not significantly adversely affect current access or use of the area for dispersed recreation. Because the area supports neither important nor unique land-based recreational opportunities or facilities, the impact of future development of this area under proposed project conditions is considered to have a *less than significant* impact. In addition, these Watershed Lands do not provide access to important or unique land-based recreational resources, so this too is considered a *less than significant* impact.

***Impacts Identified as Significant.*** None.

### **Impact to Entire Shasta Regional Bundle**

The following land-based significant impact would occur in the Shasta Regional Bundle:

- Land would be lost to dispersed recreation
- Access to the Pacific Crest Trail could be lost and the trail would not continue across the Pit 3 Dam
- Opportunities for land-based recreation within the individual FERC licenses have been determined to be *less than significant* with mitigation. On a regional bundle level, however, consideration must be given to the collective loss of recreational opportunities region-wide. The potential development of 594 EDUs in the Hat Creek bundle, 1,826 EDUs in the Pit River bundle, 20 EDUs in the Kilarc-Cow Creek bundle, and 596 EDUs in the Battle Creek bundle totals 3,036 EDUs on the 43,636 acres on the entire Shasta Region bundle. In addition, 20,500 acres have the potential for more intensive timber harvest under the project (not including the Timber Harvest Plans that are currently active within the National Forest lands), and all Watershed Lands between Pit 1 and Pit 3 powerhouses and in the vicinity of Hat Creek 2 powerhouse (Bundle 1) are considered subject to expanded mining activities. While the land surrounding these licenses is public and provides for dispersed recreation, much of the land within the regional bundle is poorly accessible and has steep topography - especially in the river canyons. Many of the access roads to the rivers and other areas used for dispersed recreation are Pacific Gas and Electric Company roads or poorly maintained logging roads. If access via Pacific Gas and Electric Company roads were eliminated regionwide, it could be detrimental to anglers and boating enthusiasts who use these roads on a regular basis. Additionally, according to United States Forest Service standards, demand exceeds supply for developed recreational facilities in Shasta-Trinity National Forest. The combined effort of eliminating all or much of the current recreational facilities/opportunities would be significant. This effect, however, could be adequately mitigated through implementation of Mitigation Measures 6-2.a through 6-2.w.

#### 4.6.9.2 Impact 6-2: DeSabra Regional Bundle

##### **Bundle 5: Hamilton Branch**

Approximately 6,799 acres of Watershed Lands are associated with the Hamilton Branch area in parcels contiguous to the FERC license boundary near Mountain Meadows Reservoir.

Under proposed project conditions, no land-based recreational facilities would be affected by changes in hydrologic operations or mineral extractions. Selection harvests, in addition to salvage harvest, could occur on approximately 100 acres of forested Watershed Lands under proposed project conditions. Additionally, the development of up to 35 EDUs is possible under project conditions. Should development of Watershed Lands occur, public access to these lands would be terminated, resulting in the loss of Watershed Lands for dispersed recreation purposes.

***Impacts Identified as Significant.*** None.

##### ***Hamilton Branch (non-FERC)***

***Impacts Identified as Less Than Significant.*** There are no land-based recreational facilities (such as campgrounds) associated with this area. The project, therefore, would have no impact on land-based recreational facilities.

Logging could occur in the areas used for informal dispersed recreation. There are other similar lands in the region that could be used for dispersed recreation. Logging would occur intermittently over large areas and would therefore have a temporary effect on dispersed land-based recreation. Project land-based recreation impacts as a result of logging would be *less than significant*.

***Impacts Identified as Significant.*** Local residents have historically used Mountain Meadows Reservoir and surrounding lands associated with Hamilton Branch facilities for hunting, picnicking, hiking, and wildlife viewing. Since the lands that accommodate these uses could be developed and be closed to public access, these land-based recreational opportunities could be eliminated. This could result in a *significant impact* on dispersed recreational opportunities from development.

##### **Bundle 6: North Fork Feather River**

##### ***Upper North Fork Feather River (FERC 2105)***

Approximately 1,292 acres of Watershed Lands are associated with the Upper North Fork Feather River license in parcels contiguous to the FERC license boundary in the vicinity of the Belden powerhouse and along the North Fork Feather River and Caribou Road. In addition, there are 2,141 acres of Watershed Land associated with the license that are not contiguous to the FERC license boundary.

Under proposed project conditions, no land-based recreational facilities would be affected by changes in hydrologic operations or mineral extractions. Selection harvests, in addition to salvage

harvest, could occur on a total of approximately 3,500 acres of forested Watershed Lands under proposed project conditions. Additionally, the development of up to 1,345 EDUs is possible under project conditions. Should development of Watershed Lands occur, public access to these lands would be terminated, resulting in the loss of Watershed Lands for dispersed recreation purposes.

***Impacts Identified as Less than Significant.*** Recreational use of this area is low and alternative opportunities for dispersed recreation are readily available nearby. Because the area supports neither important nor unique land-based recreational opportunities or facilities, the impact of future development of this area under proposed project conditions is considered to have a *less than significant* impact. In addition, these Watershed Lands do not provide access to important or unique land-based recreational resource, so this too is considered a *less than significant* impact.

The only water supply agreement applicable to this license is between Pacific Gas and Electric Company and the Western Canal Water District and can only be cancelled by mutual consent. Since the new owner cannot alone end the water supply agreement there can be no project impacts on land-based recreation related to a loss of water supplies.

***Impacts Identified as Significant.*** None.

#### ***Lake Almanor***

***Impacts Identified as Less Than Significant.*** Campground facilities run by the US Forest Service at Lake Almanor are in need of repair and reach capacity during the peak season. If water is stored at higher levels past Labor Day, the level of use at these campgrounds could increase. However, increased use of the campground facilities would also increase any use-associated damage to those facilities. This impact would be partially offset by increased revenues from fees that could be used to make repairs on the campground facilities and therefore is considered *less than significant*.

Under the WaterMax Scenario, changes in the levels of Lake Almanor could result in the lake level dropping below that required for boating and boat-related recreation earlier in the season. This could result in a decrease in the quality of experience at land-based recreational facilities such as campgrounds. This impact would be *less than significant* because, even with a potential reduction in reservoir levels, there is a high demand for these facilities and the facilities are expected to operate at near capacity.

A new owner may not allow the Civil War reenactment that Pacific Gas and Electric Company has informally allowed in the past on lands near Lake Almanor. Since other lands that would be appropriate for this use in the general vicinity are available for this activity, the loss of the potential for this activity (or opportunity) on Pacific Gas and Electric Company lands would be considered *less than significant*.

***Impacts Identified as Significant.*** There is a Pacific Gas and Electric Company FERC-licensed campground on the north end of Lake Almanor called Last Chance. Pacific Gas and Electric

Company owns Watershed Lands adjacent to this facility, access over which is required when traveling by land. Access is available from the FERC boundary to the south. Development on the Watershed Lands adjacent to this campground may impede access to it. Loss of access to this recreation facility would create a *significant impact* because it is well used and other recreational facilities at the lake are often near or over capacity.

The harvest of the DeSabra Timber Management Plan using more even-aged methods is assumed under the project. This activity could occur intermittently creating temporary traffic, noise, and dust and could leave the forest in a less aesthetically pleasing condition for a number of years. Given the large amount of recreation activities and facilities around Lake Almanor and the large extent of logging assumed, the impact of this increased logging activity is considered *significant*.

A new owner could eliminate all of the land-based recreational facilities, outside of FERC boundaries, that Pacific Gas and Electric Company has provided at Lake Almanor. This is because there is no FERC approved Recreation Plan for the North Fork of the Feather River license and facilities provided by a licensee outside of the FERC boundary and not pursuant to an approved recreation plan are not regarded by FERC to be a part of the project. Facilities that could be eliminated are: Lake Almanor Campground, Almanor Scenic Overlook, East Shore Picnic Area, Last Chance Campground, and Lake Almanor Overflow Campground. Since these facilities are heavily used for recreation purposes this impact would be *significant*.

### ***Butt Valley Reservoir***

***Impacts Identified as Less than Significant.*** No land-based recreation experiences would be affected by the project in this area because the land-based recreational facilities in this area are required by FERC license conditions and are therefore required of any future owner of the FERC license.

Land use changes on Watershed Lands around the Cool Springs campground could result in development of these lands for residential uses (92 EDUs in the Butt Valley Reservoir land area). However, since the campground is required by FERC, it is assumed that access will remain unchanged. The development of 92 EDUs is not expected to substantially alter the quality of recreation at the campground to the extent that usage drops significantly.

***Impacts Identified as Significant.*** None.

### ***North Fork Feather River***

***Impacts Identified as Less Than Significant.*** There are no land-based recreational facilities in this license area. However, there is a low level of land-based dispersed recreational opportunities on Watershed Lands in this license. Because of the low level of use and the availability of similar experiences on vast public lands in the region, this resource is considered neither important nor

unique. The impact associated with closing public access to these lands on land-based recreational opportunities, therefore, would be *less than significant*.

There are two leases for recreation homes on Watershed Lands. A new owner(s) may not renew them upon expiration. Because this impact would only affect two homes, and any new lessee would likely also use the facilities for recreation homes, there would be no impact associated with the potential change in use of these facilities.

***Impacts Identified as Significant.*** Informal camping and off highway vehicle (OHV) use occurs on two parcels in the area. This area is also used for fishing access. A road that goes through the Watershed parcels is often used for access to an informal camping area and OHV use. The new owner of this land could close this land to public access and also prevent use of the road through the property. This would result in a *significant impact* because there are only a few areas where fishing access, informal camping, and OHV use opportunities are available in this area.

North Fork Feather River Watershed Lands provide a turnout that is used for parking and access to the North Fork of the Feather River. The new owner could restrict access to this property, thereby reducing access to the river for fishing. This would result in a *significant impact* because there are only a few areas where access to the river and parking are available in this area.

#### ***Rock Creek-Cresta (FERC 1962)***

***Impacts Identified as Less Than Significant.*** The only water supply agreement between Pacific Gas and Electric Company and the Western Canal Water District and DWR served by the Rock Creek-Cresta license can only be cancelled by mutual consent. The project, therefore, would not affect water deliveries to land-based recreational uses.

There is potential for selective timber harvest to occur in the Humbug Valley/Yellow Creek area. There is dispersed land-based recreation in this area that could be affected by the timber harvest. The recreation uses would be temporarily affected during harvesting, and trees will grow back over time. Due to the large amount of land in the Humbug Valley and the moderate use it experiences this impact would be *less than significant*.

***Impacts Identified as Significant.*** The Soda Spring Historic Site is not required by FERC as a part of the license and is outside of FERC boundaries. The site has historic importance. It does not provide any active recreational opportunities, but does provide passive recreation such as enjoying the Humbug Valley views. The project would have a *significant impact* because this facility could be eliminated as a public recreation facility.

In the same general area as the Soda Springs Historic Site, Pacific Gas and Electric Company operates the Yellow Creek Campground in Humbug Valley. Yellow Creek offers angling opportunities. The campground facilities are in excellent repair and experience moderate use. Although not within a FERC-licensed area, the Humbug Valley was acquired by Pacific Gas and

Electric Company as mitigation for the Rock Creek-Cresta license. The campground, however, is not specifically conditioned by that license. Therefore, it is assumed a new owner of the Yellow Creek Campground could close it. This would be a *significant impact* because the facility and associated recreational opportunities would be lost in an area where few other camping facilities have available capacity.

### ***Upper North Fork Feather River***

***Impacts Identified as Less Than Significant.*** Except for the Shady Rest Area on Highway 70 near Storrie, recreational facilities in the North Fork Feather River area are required by FERC license. FERC would require continued operation and maintenance of these facilities by a new owner(s) of the FERC license. This would ensure that there would be no impacts of the project on recreational facilities.

Watershed Lands in this area do provide a small amount of land-based recreational opportunities but no land-based recreational facilities. Development of these lands (19 EDUs within the entire Rock Creek Cresta license), or a new owner denying access to these lands would reduce the already low level of land-based recreation occurring. This impact would be *less than significant* because the resource is considered neither important nor unique.

***Impacts Identified as Significant.*** None.

### ***Poe (FERC 2107)***

Approximately 72 acres of Watershed Lands are associated with the Poe license in parcels contiguous to the FERC license boundary in the vicinity of the Poe powerhouse and along the North Fork Feather River. In addition, there are 3,129 acres of Watershed Land associated with the license that are not contiguous to the FERC license boundary. Recreational opportunities on the Watershed Lands associated with the Poe license are limited due to the steep terrain and difficult accessibility of these properties.

Under project conditions, no land-based recreational facilities would be affected by changes in hydrologic operations or mineral extractions. Selection harvests, in addition to salvage harvest, could occur on a total of approximately 1,800 acres of forested Watershed Lands under proposed project conditions. Additionally, the development of up to 31 EDUs is possible under project conditions. Should development of Watershed Lands occur, public access to these lands would be terminated, resulting in the loss of Watershed Lands for dispersed recreation purposes.

***Impacts Identified as Less Than Significant.*** There are no developed recreational facilities associated with this license. Therefore, the proposed project will have no effect on land-based recreational facilities in this area.

Watershed Lands north of the Poe powerhouse are used for swimming, fishing, and occasional camping in the area near Bardees Bar. A four-wheel-drive vehicle is required to access this area on a county road. There is a low level of dispersed recreation in these Watershed Lands primarily due to steep terrain. There would be *less than significant* impacts to land-based recreational opportunities in the Poe Watershed Lands if access to Watershed Lands were to be eliminated because the opportunities are not considered important or unique.

**Impacts Identified as Significant.** None.

#### **Bundle 7: Bucks Creek**

Approximately 565 acres of Watershed Lands are associated with the Bucks Creek license parcels contiguous to the FERC license boundary, but they are located along the steep slopes of the Feather River Canyon and do not provide any recreational opportunities. In addition, there are 239 acres of Watershed Land associated with the license that are not contiguous to the FERC license boundary.

Under project conditions, no land-based recreational facilities would be affected by changes in hydrologic operations or mineral extractions. Selection harvests, in addition to salvage harvest, could occur on a total of approximately 1,000 acres of forested Watershed Lands under proposed project conditions. Additionally, the development of up to 244 EDUs is possible under project conditions. Should development of Watershed Lands occur, public access to these lands would be terminated, resulting in the loss of Watershed Lands for dispersed recreation purposes.

#### ***Bucks Creek (FERC 0619)***

#### ***Bucks Lake***

**Impacts Identified as Less Than Significant.** A new owner(s) of Bucks Lake could choose to maximize power supply (PowerMax Scenario) or maximize water supply delivery (WaterMax Scenario) and alter lake levels at Bucks Lake. Reductions of lake levels below the threshold would occur more frequently than under the baseline scenario, altering views of the lake. This impact, however, is considered to be *less than significant* because the land-based facilities around Bucks Lake would still be useable and views would only be altered part of the time.

Pacific Gas and Electric Company has informally allowed triathlon events at Bucks Lake for several years. Since this is not required by the FERC license, the new owner of this license could deny permission for this event to be held. This is considered a *less than significant* impact on land-based recreation experiences because there are other areas in the region that could be used for this activity.

Watershed Lands in this license are steep and do not afford any recreational opportunities or facilities. Therefore, the project would have no impact on land-based recreation experiences and facilities on these Watershed Lands.

**Impacts Identified as Significant.** None.

#### **Bundle 8: Butte Creek**

##### ***DeSabra-Centerville (FERC 0803)***

Approximately 691 acres of Watershed Lands are associated with the Butte Creek license in parcels contiguous to the FERC license boundary, some located north of DeSabra Forebay and south of the DeSabra powerhouse. In addition, there are 1,499 acres of Watershed Land associated with the license that are not contiguous to the FERC license boundary.

Under proposed project conditions, no land-based recreational facilities would be affected by changes in hydrologic operations or mineral extractions. Selection harvests, in addition to salvage harvest, could occur on a total of approximately 700 acres of forested Watershed Lands under proposed project conditions. Additionally, the development of up to 66 EDUs is possible under project conditions. Should development of Watershed Lands occur, public access to these lands would be terminated, resulting in the loss of Watershed Lands for dispersed recreation purposes.

**Impacts Identified as Less Than Significant.** A water supply agreement with a private user (Elden Duensing) to supply 4.8 miners inches between May and November can be cancelled at will. There is no evidence that this water is used for recreation at land-based facilities. Two other water supply agreements may only be cancelled by mutual consent (Stirling Bluffs and Allan Harthorn). Another water supply agreement expires when the FERC license expires. Since a new owner(s) cannot unilaterally cancel the agreements there would be no water supply impacts on the proposed project land-based recreational facilities and opportunities as a result of this project. Also, there is no evidence that the water delivery pursuant to these contracts provides water for recreational facilities.

At Philbrook Reservoir Pacific Gas and Electric Company land-based recreational facilities include a FERC-licensed campground, boat launch, and picnic area. Pacific Gas and Electric Company also holds leases to 44 summer homes on lots leased to Pacific Gas and Electric Company. A change of uses on Pacific Gas and Electric Company's Watershed Lands would not preclude access to these FERC-required land-based recreational facilities. Development of adjacent land would diminish the rural quality of the experience. This impact would be *less than significant* because the facilities would continue to operate albeit with a diminished ambience.

Development of Watershed Lands or denial of access to these lands will reduce the low level of dispersed recreation that is occurring on these lands. Logging would only temporarily reduce the amount of land available for dispersed recreation and create dust, noise and hazards that would reduce the quality of the recreational opportunities on these lands. Denial of access to or development of these lands would have a *less than significant* impact on land-based recreational opportunities on these Watershed Lands because they are lightly used for dispersed recreation.

**Impacts Identified as Significant.** None.

***Lime Saddle (non-FERC)***

Approximately 131 acres of Watershed Lands are associated with the Lime Saddle license in parcels contiguous to the FERC license boundary, near the Lime Saddle Marina. Under proposed project conditions, no land-based recreational facilities would be affected by changes in hydrologic operations, mineral extractions, or timber harvest.

**Impacts Identified as Less Than Significant.** Lime Saddle has five active water supply contracts. Two can be cancelled with 90 days written notice and two can only be cancelled by mutual consent. The remaining contract supplies water to TID. There is no evidence that this water is used to supply recreational facilities. Therefore, potential cancellation of these contracts would have no impacts on land-based recreational facilities or associated opportunities.

This project contains a parcel of Watershed Land of approximately six acres. This property could be developed with one residence and there is no potential for this property to be commercially logged. Should this be developed, the nearby private marina facilities would continue to have access, as there is a state highway and county roads that provide access to the marina. The recreation facility is surrounded by private property. Project impacts on recreational facilities as a result of the sale would be *less than significant*.

**Impacts Identified as Significant.** None.

***Coal Canyon (non-FERC)***

**Impacts Identified as Less Than Significant.** Pacific Gas and Electric Company has one water supply agreement with G. Chaffin that can be cancelled upon 90 days notice. There is no evidence that this agreement is used to supply water to recreational facilities. Therefore the cancellation of this water supply agreement would have no impact on land-based recreational facilities or related experiences.

There are no land-based recreational opportunities or facilities on Watershed Lands associated with the Coal Canyon facilities. Therefore, the project land use changes (378 EDUs), and denial of access by a new owner would have no impact on land-based recreational facilities or opportunities in this area.

**Impacts Identified as Significant.** None.

***Summary of Impact to Entire DeSabra Regional Bundle***

The following significant impacts could occur in the DeSabra Regional Bundle:

- Mountain Meadows Reservoir area lands could be closed to public access eliminating local land-based recreational opportunities;

- Increased logging around Lake Almanor could impact land-based dispersed recreation;
- Access to the Last Chance campground could be lost;
- Recreational facilities (Lake Almanor Campground, Almanor Scenic Overlook, East Shore Picnic Area, Last Chance Campground, and Lake Almanor Overflow Campground) provided at Lake Almanor that are not within the FERC boundaries could be closed by a new owner;
- The Yellow Springs Campground could be closed;
- Dispersed recreational opportunities could be lost;
- A parking area that provides parking for dispersed recreation on the river could lose access to the river; and
- The Soda Spring Historic Site could be lost to land-based recreational facilities.
- opportunities for land-based recreation within individual FERC licenses have been determined to be *less than significant* with mitigation. On a regional bundle level, however, consideration must be given to the collective loss of recreational opportunities region-wide. The potential development of 35 EDUs in the Hamilton Branch bundle, 1,376 EDUs in the Feather River bundle, 244 EDUs in the Bucks Creek bundle and 444 EDUs in the Butte Creek bundle totals 2,099 EDUs in 18,039 acres on the entire DeSabra Regional Bundle. In addition, 7,000 acres have the potential for more intensive timber harvest under the project (not including the Timber Harvest Plans that are currently active within the National Forest lands). While the land surrounding these licenses is public and provide for dispersed recreation, much of the land within the regional bundle is poorly accessible and has steep topography - especially in the river canyons. Many of the access roads to the rivers and other areas used for dispersed recreation are on Pacific Gas and Electric Company roads or poorly maintained logging roads. If access via Pacific Gas and electric company roads were eliminated regionwide, it could be detrimental to anglers and boating enthusiasts who use these roads on a regular basis. The Plumas National Forest Land and Resource Management plan estimated that campground capacity would need to be increased by 30 percent to accommodate projected year 2000 demand for developed recreational facilities. There will be a need to provide new campgrounds to serve Reno demand and the Lake Basin Recreation Area. The combined effect of eliminating all or much of the current Pacific Gas and Electric Company recreational facilities/opportunities would be significant. This effect, however, could be adequately mitigated through implementation of Mitigation Measures 6-2a through 6-2w.

#### 4.6.9.3 Impact 6-2: Drum Regional Bundle

Land-based recreation impacts resulting from the project within the Drum Regional Bundle would occur on lands outside of the FERC-license boundary. Lands within the FERC boundaries are conditioned under the license to be available to the public for recreational use. As such, it is assumed for purposes of this EIR that recreational use and facilities within FERC license Areas would not appreciably change under new ownership.

#### Bundle 9: North Yuba River

There are no Watershed Lands associated with the Narrows license in parcels contiguous to the FERC license boundary. However, there are 41 acres of Watershed Land associated with the license, not contiguous to the FERC license boundary, that are located adjacent to the Yuba River and directly below the dam.

Under proposed project conditions, no land-based recreational facilities would be affected by changes in hydrologic operations, mineral extractions, or timber harvest. However, the development of up to 3 EDUs is possible under project conditions. Should development of Watershed Lands occur, public access to these lands would be terminated, resulting in the loss of Watershed Lands for dispersed recreation purposes.

***Narrows (FERC 1403)***

***Impacts Identified as Less Than Significant.*** The Narrows license has a total of 55 acres of lands below the Englebright Reservoir on both the north and south sides of the Yuba River. These lands have no formal land-based recreational opportunities or facilities. Public access to these lands is restricted due to gated access roads (PG&E Co., 1999a). Rafters and kayakers who have used the river starting at the Narrows have been known to paddle from the south to the north side of Englebright Dam and then portage boats down to the river by way of a dirt road (Stienstra, 2000). Access to the river by way of this route is not on Watershed Lands. A change in ownership with the project would be unlikely to change use patterns or access for this area of the river. There are no Narrows license lands located near the Highway 20 bridge, where a majority of public access angling occurs. No impact is expected as a result of the project.

***Impacts Identified as Significant.*** None.

**Bundle 10: Potter Valley**

***Potter Valley (FERC 0077)***

***Impacts Identified as Less Than Significant.*** Approximately 1,674 acres of Watershed Lands are associated with the Potter Valley license in parcels contiguous to the FERC license boundary around Lake Pillsbury and Scott Dam, along the Eel River from Scott Dam to Van Arsdale Reservoir, and around Van Arsdale Reservoir and Cape Horn Dam. In addition, there are 3,423 acres of Watershed Land associated with the license that are not contiguous to the FERC license boundary.

Under project conditions, no land-based recreational facilities would be affected by changes in hydrologic operations or mineral extractions. Selection harvests, in addition to salvage harvest, could occur on a total of approximately 3,400 acres of forested Watershed Lands under proposed project conditions. Additionally, the development of up to 201 EDUs is possible under project conditions. Should development of Watershed Lands occur, public access to these lands would be terminated, resulting in the loss of Watershed Lands for dispersed recreation purposes.

There are no identified losses of important or unique recreational uses and visitation identified for any of the Potter Valley Watershed Lands and resources related to land-based recreational opportunities and facilities within the Potter Valley Bundle that have not been previously discussed in Impact 6-1. Therefore, the impact of the project on land-based opportunities and facilities is considered to be *less than significant*.

**Impacts Identified as Significant. None.****Bundle 11: South Yuba River**

Approximately 11,258 acres of Watershed Lands are associated with the Drum-Spaulding license in parcels contiguous to the FERC license boundary, and 3,764 acres of Watershed Land associated with the project that are not contiguous to the FERC license boundary. These lands are located between the Rock Creek Reservoir and Halsey Forebay between Rollins Reservoir, Drum No. 1 powerhouse, including the Dutch Flat powerhouse and Alta powerhouse; between Drum Forebay to Highway 20 generally along the Bear River and the Bear River Canal; between Lake Spaulding and Fuller Lake, Rucker Lake and Blue Lake; and the vicinity of Lindsey Lakes, Rock Lakes, Culbertson Lake, and Feeley Lakes.

Under project conditions, no land-based recreational facilities would be affected by changes in hydrologic operations or mineral extractions. Selection harvests, in addition to salvage harvest, could occur on a total of approximately 9,400 acres of forested Watershed Lands under proposed project conditions. Additionally, the development of a total of 3,863 EDUs is possible under project conditions. Should development of Watershed Lands occur, public access to these lands would be terminated, resulting in the loss of Watershed Lands for dispersed recreation purposes.

***Drum-Spaulding (FERC 2310)******Grouse Ridge Vehicle Control Area***

**Impacts Identified as Less Than Significant.** Land use development potential, as characterized by the Land Use section of the EIR, is not significant, indicating that there is potential for about five dwelling units and some timber harvesting. The proposed project would not be expected to affect land-based recreational opportunities or facilities.

**Impacts Identified as Significant.** About 700 acres of Watershed Lands are in the vicinity of Lindsey Lakes, Rock Lakes, Culbertson Lake, and Feeley Lakes. Round Lake Trail and Crooked Lake Trail are to the south and east of Watershed Lands, but are not contained within them. Lindsey Lakes Trail follows the north side of Lindsey Lakes and on to Culbertson Lake and Rock Lakes. This trail crosses in and out of Watershed Lands. A new owner could potentially limit access to these trails and therefore to the connectivity of the entire Grouse Lakes Vehicle Control Area. One of the key recreational aspects of this area are the interconnected trails that allow for multiple day backpacking and connection with other regional trails, such as the Beyers Lake Trail and Baltimore Lake Trail that eventually connect with the Pacific Crest Trail. Disruption in the connectivity of the Lindsey Lakes Trail would be considered a *significant impact*. Backpacking and hiking that take place on these Watershed Lands adjacent to the lakes is dispersed and informal. No other developed recreational facilities or opportunities are associated with these lands, with the exception of opportunities in relation to the lakes, such as informal campsites along the lakes and interconnected trails.

***Meadow Lake, Fordyce Lake, Lake Sterling, White Rock Lake***

***Impacts Identified as Less Than Significant.*** The primary land-based recreational opportunities and facilities are camping along the shores of these lakes at informal campgrounds. No effect is expected because camping takes place on FERC-Licensed Areas along the shores of the lakes and FERC would require continued use and maintenance of the area. Watershed Lands around these lakes are characterized as having some potential for timber harvesting.

Under the project, public access on Watershed Lands could be reduced or eliminated. Development could result in 45 EDUs in this area. It is assumed, however, that public access to FERC-Licensed Areas must be maintained in order to meet the conditions of the FERC license. Because this access must be maintained, a new owner would be precluded from denying public access across Watershed Lands if that denial resulted in restrictions on access to public recreation on FERC-Licensed Areas or recreational facilities elsewhere that are conditioned under the FERC license. Because access to FERC-Licensed Areas would be maintained with the project, the impact of potential project-related restrictions on Watershed Lands access is considered to be *less than significant*.

***Impacts Identified as Significant.*** None.

***Lands Northwest of Lake Valley Reservoir***

***Impacts Identified as Less Than Significant.*** None.

***Impacts Identified as Significant.*** If a new owner restricted access to what is currently operated as Eagle Mountain Resort, mountain biking and cross-country skiing opportunities would be diminished for the region. These lands currently provide high quality cross-country skiing and mountain biking opportunities on well-developed trails with varied terrain. This would be considered a *significant impact* on land-based recreational resources.

***Lake Spaulding and Lang Crossing Vicinity***

***Impacts Identified as Less Than Significant.*** Access to hiking and camping and picnicking along Lake Spaulding would not be affected by changes in hydrologic operation, land use, timber harvest, mining or water allocation. These activities occur on FERC licensed lands. There are no developed recreational facilities on non FERC lands adjacent to Lake Spaulding and therefore, none would be affected.

***Impacts Identified as Significant.*** Watershed Lands below Lake Spaulding, in the Bear Valley area supports formal hiking at Sierra Discovery Trail and group picnics at the adjacent Bear Valley Group Picnic Area. New ownership of the Sierra Discovery Trail and the Bear Valley Group Picnic Area could potentially reduce access to these areas. The Sierra Discovery Trail is a unique recreational resource because of its educational value as an interpretive trail. The Bear Valley

Group Picnic Area does not have any use information, however, its proximity the Sierra Discovery Trail, Lake Spaulding, Lang Crossing, and other well used recreational areas provides a valuable resource for visitors to this area. Loss of, or reduced access to the Sierra Discovery Trail or the Bear Valley Picnic Area would be considered a significant impact to recreational resources.

*Emeralds Climbing Area.* The Emeralds climbing area is within Pacific Gas and Electric Company Watershed Land. The trails to the climbing rocks are also used by picnickers, hikers and swimmers coming from the Lang Crossing parking area. Loss of access to the rock climbing area is a potential result of the proposed project. This climbing area represents some of the more challenging rock climbing available in the Tahoe region. Loss of this access to the Emeralds climbing area would be considered a *significant impact* on land-based recreational resources.

*Pioneer Trail.* Currently there is an informal agreement between the USFS and Pacific Gas and Electric Company to plan and complete preliminary development of the Pioneer Trail. This trail would extend through Pacific Gas and Electric Company Watershed Lands to the west and north of Lake Spaulding. The project could result in preventing the development of this proposed trail. This trail would serve to extend the current Pioneer Trail that starts from outside of Nevada City along Highway 20 to where it currently ends in Bear Valley near the Bear Valley Group Camp. The proposed extension of the Pioneer Trail would provide a link between the foothills of the Sierra Nevada and the Pacific Crest Trail. Long distance trails and links to these trails such as the Pacific Crest Trail are important recreational resources for this region and to the entire West Coast of the United States. Loss of this planned link to the Sierras would be considered a *significant impact* on land-based recreation.

*Golden Quartz Trail.* The proposed trail to link Golden Quartz picnic area with Nevada Irrigation District's (NID's) Camp 19 would cross Section 1 T17N R5E. The proposed trail would connect this mid-elevation picnic area (2,900 feet) with the higher elevation Camp 19 (about 5,000 ft.) and close access to the trails and resources of the Grouse Ridge Vehicle Control Area. The project could result in the loss of this trail development, diminished hiking opportunities, and regional connectivity of trails. The proposed project could restrict or eliminate access to Watershed Lands that would be needed to develop this trail linkage. This is considered a *significant impact* to land-based recreation.

#### ***Bear Valley to Drum Forebay Along the Bear River***

*Impacts Identified as Less Than Significant.* Informal trails and dirt roads along the Bear River and on Watershed Lands south of Bear Valley to Drum Forebay provide access for dispersed hiking, angling, hunting and car camping. There are no formal land-based recreational facilities or opportunities developed on these lands. In this area, land-based recreational opportunities are limited and the lands do not provide an important recreational resource. As a result of the project, these Watershed Lands could be developed for a total of 2,408 EDUs in this area, as well as timber harvest. These types of developments could limit access to these lands for recreation. Land-based

recreational opportunities in this area are minimal and there are no recreational facilities. Therefore, such project changes would have no significant recreational impact.

**Impacts Identified as Significant.** None.

#### ***Dutch Flat – Bear River North of Rollins Reservoir***

**Impacts Identified as Less Than Significant.** Informal trails and dirt roads along the Bear River and on Watershed Lands north of Rollins Reservoir provide access for dispersed hiking, angling, hunting and car camping. In this area, land-based recreational opportunities are limited and the lands do not provide an important recreational resource. As a result of the project, these Watershed Lands could be developed for of 517 EDUs and timber harvest use. With these types of developments or a new owner could reduce the opportunity for land-based recreation on and near the Watershed Lands. However, because land-based recreational opportunities in this area are limited, infrequently used, and there are no recreational opportunities considered important or unique, this is considered a *less than significant* impact.

**Impacts Identified as Significant.** None.

#### ***Halsey Forebay***

**Impacts Identified as Less Than Significant.** The only developed recreational opportunities and facilities in this area are fishing access at Halsey Forebay on FERC land. Watershed Lands south of Halsey Forebay (potential for 357 EDUs) provide minimal dispersed hiking. Because there are few opportunities for dispersed recreation, a low density of users, and no important or unique recreational resources in this area, no impact would be expected as a result of the proposed project with respect to land-based recreational opportunities and facilities.

**Impacts Identified as Significant.** None.

#### ***Rock Creek Reservoir***

**Impacts Identified as Less Than Significant.** Land-based recreation is limited to dispersed hiking on Watershed Land (including Rock Creek Lake/Auburn land area [198 EDUs] and Folsom Lake land area [4 EDUs]). Land-based recreational opportunities in this area are of minimal value and there are no formal recreational facilities. Because there are few opportunities for dispersed recreation, a low density of users, and no important or unique recreational resources in this area, the project impact on these opportunities or facilities is considered to be *less than significant*.

**Impacts Identified as Significant.** None.

**Bundle 12: Chili Bar*****Chili Bar (FERC 2155)***

Approximately eight acres of Watershed Lands are associated with the Chili Bar license in parcels contiguous to the FERC license boundary and 24 acres of Watershed Land are associated with the license that are not contiguous to the FERC license boundary.

Under proposed project conditions, no land-based recreational facilities would be affected by changes in hydrologic operations, mineral extractions, or timber harvest. However, the development of up to four EDUs is possible under project conditions. Should development of Watershed Lands occur, public access to these lands would be terminated, resulting in the loss of Watershed Lands for dispersed recreation purposes.

***Chili Bar Reservoir***

**Impacts Identified as Less Than Significant.** There are presently no land-based recreational opportunities or facilities at the license element so there are no anticipated impacts to existing recreational opportunities and facilities due to project changes in public access, hydroelectric operations, land use, timber harvest, mineral extraction, or consumptive water allocation.

**Impacts Identified as Significant.** None.

***South Fork of the American River; Chili Bar Dam to Folsom Reservoir***

**Impacts Identified As Less Than Significant.** The substantial reduction in whitewater boating that is projected to occur as a result of the project would significantly reduce the boating access demand at El Dorado County's Henningsen Lotus Park. This reduction in demand would likely result in a reduction in access fees collected at the park. This facility is also an important local land-based recreational facility with sporting areas, soccer field, sanitation facilities, and night lighting. However, there is no substantial evidence to suggest that reductions in fees related to reduced river access would result in the loss of recreational opportunities at the park and, therefore, this impact is considered *less than significant*.

**Impacts Identified as Significant.** None.

**Summary of Impact 6-2: Entire Drum Regional Bundle**

Impacts to the entire Drum Regional Bundle include:

- Potential limitation of access to trails in the Lindsey Lakes, Culbertson Lake, and Rock Lakes areas. This would eliminate multiple day backpacking and connection with other regional trails.
- Loss of access to rock climbing areas such as the Emeralds Climbing area.
- Currently there are proposals to plan and complete preliminary development of the Pioneer Trail and the Golden Quartz Trail. The proposed project could result in preventing the development of these trails.

- Opportunities for land-based recreation within individual FERC licenses have been determined to be *less than significant* with mitigation. On a regional bundle level, however, consideration must be given to the collective loss of recreational opportunities region-wide. The potential development of 3 EDUs in the North Yuba River bundle, 201 EDUs in the Potter Valley bundle, 3,863 EDUs in the South Yuba River bundle, and 4 EDUs in the Chili Bar bundle totals 4,071 EDUs in 22,440 acres on the entire Drum Regional Bundle. In addition, 9,400 acres have the potential for more intensive timber harvest under the project (not including the Timber Harvest Plans that are currently active within the National Forest lands).

### 4.6.9.4 Impact 6-2: Motherlode Regional Bundle

#### **Bundle 13: Mokelumne River Bundle**

##### ***Mokelumne River (FERC 0137)***

Approximately 2,866 acres of Watershed Lands are associated with the Mokelumne River license in parcels contiguous to the FERC license boundary, and 2,124 acres of Watershed Land are associated with the license that are not contiguous to the FERC license boundary. These lands are located around Upper and Lower Blue Lake Reservoir; Twin and Meadow Lakes; the headwaters area of Deer Creek; Upper and Lower Bear River Reservoirs, Cole Creek along the North Fork Mokelumne River; below Salt Springs Dam; the Panther Creek watershed area; Tiger Creek watershed area; and the Lake Tabeaud and Electra Powerhouse area.

Under proposed project conditions, no land-based recreational facilities would be affected by changes in hydrologic operations or mineral extractions. Selection harvests, in addition to salvage harvest, could occur on a total of approximately 2,100 acres of forested Watershed Lands under proposed project conditions. Additionally, the development of up to 271 EDUs is possible under project conditions. Should development of Watershed Lands occur, public access to these lands would be terminated, resulting in the loss of Watershed Lands for dispersed recreation purposes.

##### ***Upper Blue Lake Reservoir Watershed Lands***

***Impacts Identified as Less Than Significant.*** Most of the recreational opportunities and facilities on these Watershed Lands are considered to be fundamentally water-based as their locations and the majority of the activities are associated with the presence of the reservoir and are addressed under Impact 6-1, above. Those activities that would be ongoing *regardless* of the presence of the reservoir include hiking into the Mokelumne Wilderness on trails with trailheads on these lands and hiking on the Pacific Crest Trail. These activities are not expected to be significantly affected by the project.

***Impacts Identified As Significant.*** The land-based recreational opportunities and facilities could be adversely affected by project-related changes in land uses (including development of 67 EDUs), timber harvest, and mineral extraction. Two trailheads that lead into the Mokelumne Wilderness begin at the lake. The Pacific Coast Trail runs through this area as well. The trails used to access the wilderness area from Upper Blue Lake and the transit of the Pacific Crest Trail across a portion

of these lands are not perfected for public uses through an easement to the USFS nor any other resource agency. Potential loss of access is considered a *significant impact*.

#### ***Blue Creek; Lower Blue Lake Reservoir to Deer Creek***

***Impacts Identified as Less Than Significant.*** None.

***Impacts Identified as Significant.*** Off highway vehicle (OHV) use is a land-based recreation opportunity that occurs along this stream reach on lands that are not part of the project. OHV use, however, can be affected by project-related changes in stream flows. Excessive flows at the two stream crossings (one in Clover Valley and one in Deer Valley) could lead to hazardous crossing conditions and/or increased channel and bank damage due to crossings undertaken during periods of higher flows. This is considered a *significant impact* requiring mitigation.

#### ***Deer Creek Watershed Lands***

***Impacts Identified as Less Than Significant.*** The identified land-based recreational opportunities on these lands include hunting camps and OHV uses. These forest uses are common in the area. Losses of these opportunities on these lands are inconsequential to the resource base and off-site opportunities. Therefore, potential project changes will not result in impacts to land-based recreation in this area.

***Impacts Identified as Significant.*** None.

#### ***Cole Creek Watershed Lands***

***Impacts Identified as Less Than Significant.*** Land-based recreation on these lands is limited to hiking, stock use, OHV, and hunting. The lands are bisected by a hiking trail. Changes in project hydroelectric or consumptive water allocation will not result in impacts to land-based recreation. Changes in land use (38 EDUs in the land area), and timber harvest (2,100 acres for the whole bundle), could, however, result in impacts to land-based recreation, but these uses are common in the area and the anticipated losses are considered *less than significant*.

***Impacts Identified as Significant.*** The Watershed Lands include portions of the Mokelumne Wilderness and a new owner could engage in activities that would result in diminished recreational resources and values in this unique wilderness area. This is considered requiring a *significant impact* requiring mitigation.

#### ***Panther Creek Watershed Lands***

***Impacts Identified as Less Than Significant.*** Land-based recreation on these lands is limited to hunting. Therefore project-related changes in hydrology will not affect land-based recreation. Changes in land use (11 EDUs in the land area) and/or timber harvest, however, could result in

impacts on land-based recreation. However, because hunting in the area is common and the loss of this opportunity on these lands is inconsequential to the resource base and off-site opportunities, this impact is considered *less than significant*.

**Impacts Identified as Significant.** None.

#### ***Tiger Creek Watershed Lands***

**Impacts Identified as Less Than Significant.** Land-based recreation on Watershed Lands near Tiger Creek is limited to hunting, therefore changes in project-related hydroelectric operations or consumptive water allocation will not result in impacts to land-based recreation. Hunting in the area is common and the loss of this land to hunt on, through development or aggressive timber harvest, is inconsequential to the resource base and availability of other lands for hunting opportunities.

**Impacts Identified as Significant.** None.

#### ***Mokelumne River Watershed Lands***

**Impacts Identified as Less Than Significant.** Land-based recreation on these lands is limited to hunting and dispersed hiking. Changes in project hydroelectric or consumptive water allocation will not result in impacts to land-based recreation.

**Impacts Identified as Significant.** Hunting in the area is common but the prevalence of private lands in the area limits the general public's access to hunting opportunities. The project-related changes in land use or restrictions on public access could further limit these opportunities. This is considered a *significant impact* requiring mitigation.

#### **Bundle 14: Stanislaus River**

##### ***Spring Gap-Stanislaus (FERC 2130)***

Approximately 568 acres of Watershed Lands are associated with the Spring Gap-Stanislaus license in parcels contiguous to the FERC license boundary located near the Kennedy Meadows Resort area; astride the access trail into the Emigrant Wilderness; above and on both sides of the Middle Fork Stanislaus River; and east of the Stanislaus forebay reservoir.

Under project conditions, no land-based recreational facilities would be affected by changes in hydrologic operations. This bundle also has potential for quartz mining. Selection harvests, in addition to salvage harvest, could occur on a total of approximately 200 acres of forested Watershed Lands under proposed project conditions. Additionally, the development of up to 37 EDUs is possible under project conditions. Should development of Watershed Lands occur, public access to these lands would be terminated, resulting in the loss of Watershed Lands for dispersed recreation purposes.

***Relief Reservoir***

***Impacts Identified as Less Than Significant.*** Pacific Gas and Electric Company has no Watershed Lands in the vicinity of the reservoir where development of timber harvest could adversely affect land-based recreation at the licensed facility. There will be no adverse affects to recreation in this area as a result of the project. .

***Impacts Identified as Significant.*** None.

***Strawberry Reservoir (Pinecrest Lake)***

***Impacts Identified as Less than Significant.*** Pacific Gas and Electric Company has no Watershed Lands in the vicinity of the reservoir that could be adversely affected by the project. Therefore, there will be no impact to land-based recreation in this area as a result of the project.

***Impacts Identified as Significant.*** None.

***Philadelphia Diversion Pool***

***Impacts Identified as Less Than Significant.*** There are no Watershed lands and no recreational facilities at this facility that could be affected by the Project. Therefore, land-based recreation will not be affected due to the proposed project.

***Impacts Identified as Significant.*** None.

***Sand Bar Reservoir***

***Impacts Identified as Less Than Significant.*** Pacific Gas and Electric Company has no Watershed Lands in this area that could be adversely affected by the project. Therefore, land-based recreation will not be affected due to the proposed project.

***Impacts Identified as Significant.*** None.

***Stanislaus Forebay Reservoir***

***Impacts identified as less than significant.*** Land-based recreational opportunities and facilities are limited to day-use and picnicking. Pacific Gas and Electric Company lands that occur in the vicinity of the reservoir would not be affected because these facilities are covered by FERC recreation plan and management conditions. It is assumed that these facilities, and the recreation they provide, would not be significantly affected by the project.

***Impacts Identified as Significant.*** None.

***Stanislaus Afterbay***

***Impacts Identified as Less Than Significant.*** There are presently no land-based recreational opportunities or facilities in the vicinity. Therefore, no adverse impacts to land based recreation will occur as a result of the project.

***Impacts Identified as Significant.*** None.

***Summit Creek/Middle Fork Stanislaus River to Clark Fork***

***Impacts Identified as Less Than Significant.*** There are no land-based recreational opportunities or facilities that would be adversely impacted by changes in hydroelectric operation or by consumptive allocated water changes.

***Impacts Identified as Significant.*** Land-based recreational opportunities could be adversely affected by potential changes in land use (37 EDUs in the license), timber harvest (200 acres in the license), and mineral extraction on Watershed Lands. The trail that is the main northern entry route into Emigrant Wilderness is through these lands. Presently, hikers and other uses of the wilderness using this access location must use the public parking area near the USFS's Deadman campground and hike 0.5 mile along a road through the developed Kennedy Meadows Resort, then another 1 mile on a dirt road on undeveloped Pacific Gas and Electric Company lands before reaching USFS lands just before the Wilderness boundary. Future land management and land uses (including issues such as expanded commercial development at Kennedy Meadows, timber harvest and mineral extraction) on these lands could significantly affect the recreational resource values to land-based recreational users entering the wilderness area. In addition, there is no perfected public easement along this route. Potential impacts include loss of direct public access to the wilderness and/or the degradation of hiking value to the point of displacing users (forcing users to find alternate areas in which to recreate). This is considered a *significant impact* requiring mitigation.

***South Fork Stanislaus River; Strawberry Dam to Lyons Reservoir***

***Impacts Identified as Less Than Significant.*** Pacific Gas and Electric Company's Watershed Lands in this area are limited to the reach between Spring Gap Road and Lyons Reservoir. Land-based recreation associated with those lands is discussed in the section on the Phoenix license (see South Fork Stanislaus River; Spring Gap Road to Lyons Reservoir). There are no additional mitigation actions proposed here to address land-based recreational opportunities and facilities due to land use, timber harvest, and mineral extraction.

***Impacts Identified as Significant.*** None.

***Middle Fork Stanislaus River; Spring Gap Powerhouse to Sand Bar Reservoir***

***Impacts Identified as Less Than Significant.*** Pacific Gas and Electric Company has Watershed Lands in the vicinity of this stream reach at the Spring Gap powerhouse. These lands, however, are located in steep rugged terrain with little opportunity for substantial land development (37 EDUs total), timber harvest, or mineral extraction. In addition, no consumptive water allocation issues have been identified in this reach. Therefore, any impact on land-based recreational opportunities or facilities due to project-related changes in land management or water allocation would be less than significant.

***Impacts Identified as Significant.*** Access to the Spring Gap powerhouse to Sand Bar Reservoir reach, for the purposes of water and land-based recreation, is on the Sand Bar Flat to Beardsley Trail which crosses Pacific Gas and Electric Company Watershed Lands and is not perfected with a public access easement. Potential impacts could occur as a result of actions of a new owner. These impacts and mitigation actions are addressed above under Impact 6-1. No additional mitigation actions are proposed.

***Middle Fork Stanislaus River; Sand Bar Dam to North Fork Stanislaus River***

***Impacts Identified as Less Than Significant.*** Pacific Gas and Electric Company has no Watershed Lands in this area (except at the Stanislaus powerhouse where FERC-licensed Areas do occur). Therefore, adverse impacts to land-based recreation will occur as a result of the project.

***Impacts Identified as Significant.*** None.

***Kennedy Meadows Watershed Lands***

***Impacts Identified as Less Than Significant.*** The land-based recreation opportunity and facility issues were addressed above under Summit Creek/Middle Fork Stanislaus River to Clark Fork. No additional mitigation actions are proposed.

***Impacts Identified as Significant.*** None.

***Spring Gap Powerhouse Watershed Lands***

***Impacts Identified as Less Than Significant.*** There are no known land-based recreational opportunities or facilities on these lands. No changes in hydroelectric operations or consumptive allocated water are expected in the vicinity of these lands.

***Impacts Identified as Significant.*** These lands are in the viewshed of water-based recreation along the Middle Fork Stanislaus River. In addition, the USFS has instituted relatively high land use standards on adjacent National Forest lands that are aimed at maintaining high scenic values. Project-related changes in land management practices could adversely affect water-based and land-

based recreational resources and opportunities due to changes in land use (37 EDUs total), timber harvest (200 acres total), and mineral extraction. These issues are addressed above under Impact 6-1. No additional mitigation actions are proposed.

#### ***Stanislaus Forebay Watershed Lands***

***Impacts Identified as Less Than Significant.*** The land-based recreational opportunities and facilities within Stanislaus Forebay Watershed Lands are limited to bank angling. The operational necessities of the license and FERC license conditions designed to support bank angling are contained within the FERC recreation plan. Potential for quartz mining has been identified in the vicinity of the Stanislaus forebay area. Due to the localized nature of these activities, the impact on angling is expected to be *less than significant*. Therefore, no potential changes as a result of the Project are expected to result in impacts land-based recreation.

***Impacts Identified as Significant.*** None.

#### ***Phoenix License Facilities (FERC 1061)***

Approximately 800 acres of Watershed Lands are associated with the Phoenix license in parcels contiguous to the FERC license boundary, and 39 acres of Watershed Land associated with the license that are not contiguous to the FERC license boundary. These lands are located along the South Fork Stanislaus River, Lyons Reservoir, and at the intersection of the Main Tuolumne Canal and South Fork Road near Twain Harte.

Under proposed project conditions, no land-based recreational facilities would be affected by changes in hydrologic operations or mineral extractions. Selection harvests, in addition to salvage harvest, could occur on a total of approximately 600 acres of forested Watershed Lands under proposed project conditions. Additionally, the development of up to 10 EDUs is possible under project conditions. Should development of Watershed Lands occur, public access to these lands would be terminated, resulting in the loss of Watershed Lands for dispersed recreation purposes.

#### ***Lyons Reservoir***

***Impacts Identified as Less Than Significant.*** There are no land-based recreational opportunities or recreational facilities at this Lyons Reservoir. Therefore, no impacts are expected as a result of the project.

***Impacts Identified as Significant.*** None.

#### ***Phoenix Lake***

***Impacts Identified as Less Than Significant.*** There are no land-based recreational opportunities or recreational facilities at this resource. Therefore, no impacts as a result of the project are expected.

**Impacts Identified as Significant.** None.

***South Fork Stanislaus River; Lyons Dam to New Melones Reservoir***

**Impacts Identified as Less Than Significant.** There are no land-based recreational opportunities nor recreational facilities on this resource. Therefore no impacts are expected as a result of the project

**Impacts Identified as Significant.** None.

***Phoenix Powerhouse Creek***

**Impacts Identified as Less Than Significant.** There are no land-based recreational opportunities or recreational facilities on this creek. Therefore no impacts are expected as a result of the project

**Impacts Identified as Significant.** None.

***South Fork Stanislaus River; Spring Gap Road to Lyons Reservoir***

**Impacts Identified as Less Than Significant.** Please refer to the South Fork Stanislaus River, Spring Gap Road to Lyons Reservoir discussion under Impact 6-1, above.

**Impacts Identified as Significant.** Land-based recreational opportunities and facilities for this reach are associated with the Sugar Pine Railroad Trail. Impacts on the trail are addressed above under “South Fork Stanislaus River; Spring Gap Road to Lyons Reservoir” for water-based recreational resources (Impact 6-1). This impact addresses adverse effects on the trail and applies to land-based as well as water-based recreation.

***South Fork Stanislaus River Watershed Lands Above Lyons Reservoir***

**Impacts Identified as Significant.** Many of the land-based recreational opportunities and facility impact issues relevant to these lands are addressed above under South Fork Stanislaus River; Spring Gap Road to Lyons Reservoir for water-based recreation. However, public access on these lands for the Sugar Pine Railroad Trail affect inland uses along portions of that trail toward Twain Harte and Strawberry. The public use of this trail on Pacific Gas and Electric Company lands is not assured by a public access easement. Potential restrictions in access assumed under the project would adversely affect an important and unique land-based recreation opportunity. This is considered a *significant impact*.

***Lyons Reservoir Watershed Lands***

The land-based recreational opportunities and facility impact issues relevant to Lyons Reservoir Watershed Lands relate exclusively to the Sugar Pine Railroad Trail and are addressed above under Lyons Reservoir Watershed Lands for water-based recreation. The issue of the public access to the

Sugar Pine Railroad Trail is also addressed above under South Fork Stanislaus River Watershed Lands Above Lyons Reservoir.

### **Main Tuolumne Canal Fishing Access Watershed Lands**

***Impacts Identified as Less Than Significant.*** There are no land-based recreational opportunities or recreational facilities at this project element. Therefore no impacts are expected as a result of the project.

***Impacts Identified as Significant.*** None.

### **Bundle 15: Merced River**

#### ***Merced Falls (FERC 2467)***

Approximately one acre of Watershed Land is associated with the Merced Falls project that strip-borders the north shore of the reservoir in the vicinity of Merced Irrigation District's Merced Falls recreation facility.

Under project conditions, no land-based recreational facilities would be affected by changes in hydrologic operations, mineral extractions, or timber harvest. The development of up to one EDU is possible under project conditions. Should development of this land occur, public access would be terminated, resulting in the loss of Watershed Land for dispersed recreation purposes.

#### ***Merced Falls Reservoir***

***Impacts Identified as Less Than Significant.*** There are no land-based recreational opportunities or recreational facilities at this project element. Therefore no impacts as a result of the project are expected.

***Impacts Identified as Significant.*** None.

#### ***Merced River; Merced Falls Dam to Snelling Diversion Impoundment***

***Impacts Identified as Less Than Significant.*** There are no land-based recreational opportunities or recreational facilities at this resource. Therefore no impacts as a result of the project are expected.

***Impacts Identified as Significant.*** None.

### **Summary of Impact 6-2: Entire Motherlode Regional Bundle**

Impacts to the entire Motherlode Regional Bundle include:

- Access to the trails used to reach the Emigrant Wilderness area from Upper Blue Lake and the Summit Creek areas, the transit of the Pacific Crest Trail, and use of the Sugar Pine Railroad Trail in Twain Harte and Strawberry may be restricted;

- OHV use may be negatively affected by streamflows that may overflow at crossings and lead to hazardous conditions;
- Restrictions to access Watershed Lands may adversely impact hunting, fishing, dispersed hiking, and similar activities;
- Corresponding USFS management issues on adjacent lands may be compromised with changes in land use, timber harvest, and mineral extraction;
- Opportunities for land-based recreation within individual FERC licenses have been determined to be *less than significant* with mitigation. On a regional bundle level, however, consideration must be given to the collective loss of recreational opportunities region-wide. The potential development of 271 EDUs in the Mokelumne River bundle, 47 EDUs in the Stanislaus River bundle, and 1 EDU in the Merced Falls bundle totals 319 EDUs in 7,817 acres on the entire Motherlode Regional Bundle. In addition, 2,900 acres have the potential for more intensive timber harvest under the project (not including the Timber Harvest Plans that are currently active within the National Forest lands). While the land surrounding these licenses is public and provide for dispersed recreation, much of the land within the regional bundle is poorly accessible and has steep topography - especially in the river canyons. Many of the access roads to the rivers and other areas used for dispersed recreation are on Pacific Gas and Electric Company roads or poorly maintained logging roads. If access via Pacific Gas and Electric Company roads were eliminated region-wide, it could be detrimental to anglers and boating enthusiasts who use these roads on a regular basis. The combined effect of eliminating all or much of the current Pacific Gas and Electric Company recreational facilities/opportunities would be significant. This effect, however, could be adequately mitigated through implementation of Mitigation Measures 6-2.a through 6-2.w.

#### 4.6.9.5 Impact 6-2: Kings Crane-Helms Regional Bundle

##### **Bundle 16: Crane Valley**

##### ***Crane Valley (FERC 1354)***

Approximately 740 acres of Watershed Lands are associated with the Crane Valley license in parcels contiguous to the FERC license boundary along the western side of Bass Lake, around the San Joaquin No. 3 powerhouse and Forebay at the north end of Manzanita Lake, and near the San Joaquin No. 2 powerhouse and Forebay. No developed recreational facilities are located on Watershed Lands.

***Impacts Identified As Less Than Significant.*** Under proposed project conditions, no land-based recreational facilities would be affected by changes in hydrologic operations. Restrictions on access to Watershed Lands, however, could reduce or eliminate recreational uses of these lands, which are relatively light (419 dispersed-use recreation visits in 1996) and support no unique recreational facilities or resources.

Selection harvests, in addition to salvage harvest, could occur on approximately 100 acres of forested Watershed Lands near Bass Lake and Manzanita Lake under proposed project conditions. While these harvests would not displace existing recreational facilities, the harvests could diminish the recreational qualities of other Watershed Lands that are used for dispersed activities such as hunting, hiking, and wildlife viewing.

The development of up to 104 EDUs near Bass Lake, 246 EDUs near Manzanita Lake, 24 EDUs near San Joaquin No. 2 powerhouse, and six EDUs near the A.J. Wishon powerhouse is possible

under project conditions. Should development of Watershed Lands occur, public access to these lands would be terminated, resulting in the loss of watershed lands for dispersed recreation purposes.

In summary, under project conditions, public access to 740 acres of Watershed Lands could be eliminated under project conditions by access restrictions imposed by a new owner or by development of Watershed Lands. Timber harvests could also reduce the recreational amenities provided by 100 acres of forested Watershed Lands near Bass Lake and Manzanita Lake. While adverse, the potential impact on dispersed use of Watershed Lands is considered *less than significant* because use of Watershed Lands is relatively light, large tracts of Forest Service lands available for dispersed recreational uses are located nearby, and the Watershed Lands support no unique recreational facilities. For context, the loss of 740 acres of Watershed Lands would represent less than 0.1 percent of the approximately 1.3 million acres of land available to the public within the adjacent Sierra National Forest.

***Impacts Identified as Significant.*** Concerns have been raised regarding the maintenance of recreation sites and facilities at Bass Lake under a new owner. Pacific Gas and Electric Company has made some commitments to funding improvements to facilities at Bass Lake. As part of the relicensing process for the Crane Valley powerhouse, Pacific Gas and Electric Company was requested to make \$24 million worth of recreation improvements at Bass Lake. Pacific Gas and Electric Company made a funding commitment of \$6 million for resource mitigation and improvement measures (PG&E Co., 2000). As part of these funds, Pacific Gas and Electric Company has committed to pay the Sierra National Forest 50 percent of the rehabilitation costs (up to a maximum of \$100,000) for Lakeside Picnic Area, and 50 percent of the rehabilitation costs for The Forks Campground.

Pacific Gas and Electric Company also has made an informal commitment to make repairs (estimated cost \$1 million) to USFS lands damaged by Brown's Ditch Diversion flooding approximately three years ago. Pacific Gas and Electric Company indicated that repairs would be done by Fall 2000.

These funding commitments for facility improvements are conditions negotiated for Pacific Gas and Electric Company's relicensing for the Crane Valley license. If relicensing is not complete by the time of divestiture, a new owner would not be bound by these commitments. Similarly, if repairs to the USFS lands damaged by the Brown's Ditch Diversion flood are not complete by the time of divestiture, a new owner may not voluntarily make these repairs. Loss of these funding commitments would cause an adverse impact on the condition of the recreational facilities and land-based recreational opportunities at Bass Lake. This impact is therefore considered *significant*.

**Bundle 17: Kerckhoff*****Kerckhoff (FERC 0096)***

Pacific Gas and Electric Company owns 73 acres of Watershed Lands outside of the FERC license boundary of the Kerckhoff license. This land is contiguous to the license boundary near the northwestern and northeastern corners of Kerckhoff Reservoir. No recreational facilities are located on these lands. Dispersed use emanating from access areas near the reservoir is relatively low, totaling 538 visits in 1996 (PG&E Co., 1999b).

***Impacts Identified as Less Than Significant.*** Under the project, no land-based recreational facilities would be affected by changes in hydrologic operations, timber harvests, or mineral extraction activities. Additionally, the project would have no effect on use of the parking lot that Pacific Gas and Electric Company has constructed at the Squaw Leap Management Area because the lot and nearby facilities are managed by BLM. Public access to the 73 acres of Watershed Lands, however, could be reduced or eliminated by a new owner. Additionally, the development of 91 EDUs could occur on Watershed Lands under the project. Development would probably displace existing dispersed recreational use of this acreage.

While adverse, the potential loss of the dispersed recreational opportunities provided by Kerckhoff's Watershed Lands (e.g., hunting, hiking on informal trails, wildlife viewing) is considered *less than significant* because the Watershed Lands provide no unique recreational opportunities or resources. For context, the loss of 73 acres of Watershed Lands would represent less than 0.01 percent of the land available for recreation within the adjacent Sierra National Forest.

***Impacts Identified as Significant.*** None.

**Bundle 18: Kings River*****Helms Pumped Storage (FERC 2735)***

Pacific Gas and Electric Company owns 139 acres of Watershed Lands for the Helms Pumped Storage license. Because of the difficulty of distinguishing between Watershed Lands associated with the Helms Pumped Storage license and lands associated with the Haas-Kings River license (which includes 458 acres of Watershed Lands that overlap the 139 acres of land associated with the Helms Pumped Storage license), the following discussion applies to both licenses.

The Watershed Lands associated with the Helms Pumped Storage and Haas-Kings River licenses are contiguous to the license boundaries along the western and northern sides of Wishon Reservoir. No developed recreational facilities are located on the Watershed Lands.

***Impacts Identified as Less Than Significant.*** No changes in hydrologic operations are expected under the project; however, selection timber harvests, in addition to salvage harvests, could occur on approximately 100 acres of forested Watershed Lands near Wishon Reservoir under the project.

While these harvests would probably not displace recreational facilities, the harvests could diminish the recreational qualities of Watershed Lands that are used for dispersed activities such as hunting, hiking, and wildlife viewing. This impact is considered *less than significant* because use of Watershed Lands is relatively light (2,698 visits in 1996) and the Watershed Lands support no unique recreational resources.

Under a new owner, restrictions on access to Watershed Lands could reduce or eliminate recreational uses of these lands, which are relatively light and support no unique recreational facilities or resources. Additionally, the development of up to 150 EDUs could occur on Watershed Lands near Wishon Reservoir under the project. Similar to the effect of access restrictions to Watershed Lands, development of Watershed Lands would displace dispersed recreational uses of these lands. For context, the loss of 458 acres of Watershed Lands would represent less than 0.1 percent of the land available for recreation within the adjacent Sierra National Forest. Because use of Watershed Lands is relatively light, and the lands provide no unique recreational facilities or opportunities, this impact is considered *less than significant*.

***Impacts Identified as Significant.*** None.

### ***Haas-Kings River (FERC 1988)***

***Impact Identified as Less Than Significant.*** As part of the Haas-Kings River license, Pacific Gas and Electric Company owns 458 acres of Watershed Lands, including the 102-acre Keller Ranch property. All of the remaining Watershed Lands are located contiguous to the FERC license boundary around the western and northern shores of Wishon Reservoir, and overlap Watershed Lands associated with the Helms Pumped Storage license. Please refer to the previous discussion of impacts for the Helms Pumped Storage license for a discussion of impacts on Haas-Kings River license Watershed Lands. (Note: Potential impacts to whitewater rafting resulting from the divestiture of Pacific Gas and Electric Company's Keller Ranch property, which is used for rafting-related parking, have been previously discussed under Impact 6-1. The Keller Ranch property is situated on the south side of the main stem of the Kings River, near Pine Flat Reservoir.)

***Impacts Identified as Significant.*** None.

### ***Balch (FERC 0175)***

***Impacts Identified as Less Than Significant.*** No Watershed Lands are owned by Pacific Gas and Electric Company as part of the Balch license. All lands and recreational facilities in the vicinity of license facilities (with the exception of Pacific Gas and Electric Company's campground at Black Rock Reservoir) are owned and operated by the Forest Service. The project would have no impact on use of these lands and facilities.

***Impacts Identified as Significant.*** None.

**Bundle 19: Tule River*****Tule River (FERC 1333)***

Pacific Gas and Electric Company owns 35 acres of Watershed Lands outside of the FERC license boundary for the Tule River license. Approximately 32 of these acres are adjacent to a 42-acre parcel around the Hossack Creek Diversion Dam. The remaining three acres of Watershed Land are adjacent to the Middle Fork of the Tule River and are surrounded by Forest Service land. No developed recreational facilities are located on the Watershed Lands.

***Impacts identified as Less Than Significant.*** No changes in timber harvest or mineral extraction activities would occur on Watershed Lands under project conditions. Similarly, no land-based recreational facilities would be affected by changes in hydrologic operations because no operational flexibility exists in the Tule River license system, and the project would be operated similarly under both proposed project and baseline conditions. Restrictions on access to Watershed Lands imposed by a new owner, however, could reduce or eliminate recreational uses of these lands, which are not heavily used and support no unique recreational facilities or resources. Most of the dispersed use of lands near the license originates from Wishon Campground, which is downstream from the Watershed Lands. Dispersed uses primarily occur on lands managed by the Forest Service, which, with the assistance of Pacific Gas and Electric Company, discourages dispersed camping on nearby lands. This impact is considered *less than significant* because of the low-density use, and because there are no opportunities considered to be important or unique.

Low-density residential development (45 EDUs) could occur on 32 acres of Watershed Land around the Hossack Creek Diversion Dam. If this property is developed, the use of other recreational facilities near the property could increase, including the use of the Forest Service's Wishon Campground, and the trailer park, rental cabins, grocery store, and restaurant associated with Camp Wishon Resort. Development on 32 acres, however, would create a relatively minor demand on existing recreational facilities and would not increase demand for overnight facilities. No capacity issues have been identified for nearby lands available for dispersed recreational uses. The potential minor increase in the use of recreational facilities would have little effect on these facilities. Therefore, the project is considered to have a *less than significant* impact on land-based recreational facilities as a result of changes in use.

Development of Watershed Lands, however, would displace dispersed recreational uses of these lands. But, as discussed previously, the Watershed Lands are not heavily used and provide no unique recreational opportunities. (Note that the Doyle Springs Homeowners Association, a residential community adjacent to the 32 acres of Watershed Land near the diversion dam, has expressed interest in purchasing this property from Pacific Gas and Electric Company in order to maintain it in open-space use.) This impact is considered *less than significant*.

***Impacts Identified as Significant.*** None.

## **Bundle 20: Kern Canyon**

### ***Kern Canyon (FERC 0178)***

Pacific Gas and Electric Company owns 612 acres of Watershed Lands outside of the FERC license boundary for the Kern Canyon license. This acreage is contained within two large parcels between the diversion dam and the Kern Canyon powerhouse, and includes an approximately 1.5-mile reach of the Kern River downstream of the diversion dam. No developed recreational facilities are located on the Watershed Lands.

***Impacts Identified as Less Than Significant.*** No changes in timber harvests or mineral extraction activities on Watershed Lands are anticipated under the project. Similarly, no land-based recreational opportunities would be affected by changes in hydrologic operations because little operational flexibility exists in the Kern Canyon license system, and the license would be operated similarly under both proposed project and baseline conditions. Restrictions on access to Watershed Lands imposed by a new owner, however, could reduce or eliminate recreational uses of these lands, including access to the 1.5-mile reach of the Kern River that runs through the Watershed Lands. Additionally, development of 30 EDUs on Watershed Lands is possible under the project. If development occurred, dispersed uses of Watershed Lands could be displaced. Recreational use of Watershed Lands is reportedly limited by the rocky, steep terrain near license facilities and the difficult access from nearby roads. Fishing and hiking are the principal activities within and near the license boundaries, although use is light. Although recreational use of Watershed Lands is light, this impact is considered *significant* because the loss of access would eliminate the public's ability to use the 1.5-mile reach of the Kern River which passes through Watershed Lands.

***Impacts Identified as Significant.*** None.

## **Summary of Impact 6-2: Entire Kings Crane-Helms Regional Bundle**

- Potential changes in timber harvest levels, access restrictions, and land use could affect recreational opportunities provided by Watershed Lands.
- Selection timber harvests, in addition to salvage harvests, could occur on approximately 100 acres of forested Watershed Lands near Bass Lake and Manzanita Lake and on 100 acres near Wishon Reservoir under proposed project conditions. While these harvests would not displace existing recreational facilities, the harvests could diminish the recreational qualities of Watershed Lands that are used for dispersed activities such as hunting, hiking, and wildlife viewing.
- Restrictions on public access to the 2,057 acres of Watershed Lands could reduce or eliminate dispersed recreational use of Watershed Lands. Development of Watershed Lands could occur near Bass Lake, Manzanita Lake, Kerckhoff Reservoir, and Wishon Reservoir under proposed project conditions. (Development of Watershed Lands near the North Fork Middle Fork Tule River and the Kern River is also possible but is considered unlikely.)
- Should development of Watershed Lands occur, public access to these lands would be terminated, resulting in the loss of Watershed Lands for dispersed recreation purposes. The impacts caused by timber harvest, potential access restrictions, and development of Watershed Lands are considered *less*

*than significant* because use of Watershed Lands is relatively light and the lands provide no unique recreational opportunities.

- Restrictions on access to Watershed Lands associated with the Kern Canyon license could also prohibit public access to a 1.5-mile-long reach of the Kern River. This impact is considered significant.
- Opportunities for land-based recreation within individual FERC licenses have been determined to be *less than significant* with mitigation. On a regional bundle level, however, consideration must be given to the collective loss of recreational opportunities region-wide. The potential development of 380 EDUs in the Crane Valley bundle, 93 EDUs in the Kerckhoff bundle, 153 EDUs in the Kings River bundle, 45 EDUs in the Tule River bundle, and 30 EDUs in the Kern Canyon bundle totals 701 EDUs on the entire Kings Crane-Helms Regional Bundle. In addition, 200 acres have the potential for more intensive timber harvest under the project (not including the Timber Harvest Plans that are currently active within the National Forest lands).

#### **4.6.9.6 Evaluation of Impact 6-2 to Entire System**

Significant project-related impacts on land-based recreational opportunities are identified in Bundles 1, 2, 5, 6, 11, 13, 14, 16, and 20. The range of impacts identified include the potential loss of access to important sites for land-based recreation and significant reductions in land-based recreational opportunities due to changes in land use or timber harvest on Pacific Gas and Electric Company lands. These effects, in large part, are localized in that their extent is limited to a specific element such as a particular area used for dispersed recreation, formal camping facilities or formal trails. Some of the effects on land-based recreation have regional significance when the project could affect the continuity of regional trail systems such as the Pacific Crest Trail. The magnitude of these effects varies depending on the type of project element, the local and regional importance of the activities it supports, and the magnitude of project-related changes.

#### **4.6.9.7 Impact 6-2: Mitigation Measures**

##### **Mitigation Measures Proposed as Part of the Project**

There are no mitigation measures proposed by the project applicant for potential recreation impacts associated with the proposed transfer of ownership.

##### **Mitigation Measures Identified in this Report**

###### ***Shasta Regional Bundle***

***Mitigation Measure 6-2.a:*** Access for the Pacific Crest Trail, Bundle 2: Prior to or concurrent with the transfer of title, Project Lands shall become burdened by a recorded non-exclusive easement requiring the new owner (and successors-in-interest) to allow public access to the Pacific Crest Trail over the Pit 3 Dam.

***Mitigation Measure 6-2.b:*** Dispersed recreation, Bundle 2: Prior to or concurrent with the transfer of title, the new owner shall by binding written instrument (binding upon successors-in-interest) agree to allow and maintain public access for recreational purposes.

***DeSabra Regional Bundle***

***Mitigation Measure 6-2.c:*** Dispersed Recreation, Bundle 5: Prior to or concurrent with transfer of title, the new owner shall by binding written instrument (binding upon successors-in-interest) agree to allow public access to the area around Mountain Meadows Reservoir for recreational purposes.

***Mitigation Measure 6-2.d:*** Logging impact on land-based recreation, Bundle 6: Prior to or concurrent with the transfer of title, the new owner shall by binding written instrument (binding upon successors-in-interest) agree that logging in the Lake Almanor area shall be conducted outside the period between Labor Day and Memorial Day at least a quarter mile from any recreational facilities such as campgrounds and trails.

***Mitigation Measure 6-2.e:*** Access issue, Bundle 6: Prior to or concurrent with transfer of title, the new owner shall by binding written instrument (binding upon successors-in-interest) agree to allow public access to the Last Chance Campground for recreational purposes.

***Mitigation Measure 6-2.f:*** Campgrounds issue, Bundle 6: Prior to or concurrent with the transfer of title, the new owner shall by binding written instrument (binding upon successors-in-interest) agree to continue operation of the Lake Almanor Campground, Almanor Scenic Overlook, East Shore Picnic Area, Last Chance Campground, and Lake Almanor Overflow Campground.

***Mitigation Measure 6-2.g:*** Access to the North Fork of the Feather River Area, Bundle 6: Prior to or concurrent with transfer of title, the new owner shall by binding written instrument (binding upon successors-in-interest) agree to allow continued public access to the North Fork of the Feather River in Section 33.

***Mitigation Measure 6-2.h:*** Loss of Soda Springs Historic Site, Bundle 6: Prior to or concurrent with the transfer of title, the new owner shall by binding written instrument (binding upon successors-in-interest) agree to continue operation and maintenance of the Soda Springs Historic Site.

***Mitigation Measure 6-2.i:*** Loss of Yellow Springs Campground, Bundle 6: Prior to or concurrent with the transfer of title, the new owner shall by binding written instrument (binding upon successors-in-interest) agree to continue operation and maintenance of the Yellow Springs Campground.

***Drum Regional Bundle***

***Mitigation Measure 6-2.j:*** Access to Kelly Lake and Lake Valley Reservoir Watershed Lands, Bundle 11: Prior to or concurrent with the transfer of title, the new owner shall by binding written instrument (binding upon successors-in-interest) agree to continue present relationships with resorts on the Lake Valley Reservoir and Kelly Lake lands. Prior to or concurrent with transfer of title, the new owner shall by binding written instrument (binding upon successors-in-interest) agree to

allow continued public access on these same lands for recreational activities associated with Lake Valley and Kelly Lake resorts.

**Mitigation Measure 6-2.k:** Golden Quartz Trail access, Bundle 11: Prior to or concurrent with the transfer of title, Project Lands shall become burdened by a recorded non-exclusive easement requiring the new owner (and successors-in-interest) to allow extension of and public access over the Golden Quartz Trail and Sierra Discovery Trail to ensure regional connectivity of trails in the region.

**Mitigation Measure 6-2.l:** Lake Valley Reservoir Lands, Bundle 11: Prior to or concurrent with the transfer of title, the new owner shall by binding written instrument (binding upon successors-in-interest) agree to develop a recreation management plan to maintain adequate public access for summer and winter recreation and to implement measures in the resulting plan to continue the current level of recreational use on Project Lands northwest of Lake Valley Reservoir.

**Mitigation Measure 6-2.m:** Grouse Lakes Vehicle Control Area access, Bundle 11: Prior to or concurrent with the transfer of title, Project Lands shall become burdened by a recorded non-exclusive easement requiring the new owner (and successors-in-interest) to allow use of Lindsey Lakes Trail to ensure regional connectivity of trails in the Grouse Lakes Vehicle Control Area.

**Mitigation Measure 6-2.n:** Lang Crossing access, Bundle 11: Prior to or concurrent with the transfer of title, the new owner shall by binding written instrument (binding upon successors-in-interest) agree to allow continued public access to Lang Crossing recreational activities including the Bear Valley Group Picnic Area.

#### ***Motherlode Regional Bundle***

**Mitigation Measure 6-2.o:** Trail access, Bundle 13: Prior to or concurrent with transfer of title, the new owner shall by binding written instrument (binding upon successors-in-interest) agree to allow public access on Project Lands at Upper Blue Lake and Meadow Reservoirs, and on the potential trail route around Twin Lake Reservoir (and appropriate corridors to provide adequate recreation values).

**Mitigation Measure 6-2.p:** Recreational access, Bundle 14: Prior to or concurrent with transfer of title, the new owner shall by binding written instrument (binding upon successors-in-interest) agree to allow public access from the Deadman Parking area (variable-width through the presently developed portion of Kennedy Meadows Resort) to the south end of the parcel along the existing access road and trail.

**Mitigation Measure 6-2.q:** Lyons Dam access, Bundle 14: Prior to or concurrent with transfer of title, the new owner shall by binding written instrument (binding upon successors-in-interest) agree to ensure continued full foot traffic access to and across, and the angling uses of, the crest of Lyons Dam.

**Mitigation Measure 6-2.r:** Public trail access, Bundle 14: Prior to or concurrent with transfer of title, the new owner shall by binding written instrument (binding upon successors-in-interest) agree to allow public access on the South Fork Stanislaus River Watershed Lands, including the Sugar Pine Railroad Trail, and any additional lands needed to maintain the function of this trail for recreational purposes and a reasonable corridor to maintain high resource values.

**Mitigation Measure 6-2.s:** Watershed Land public access, Bundle 14: Prior to or concurrent with transfer of title, the new owner shall by binding written instrument (binding upon successors-in-interest) agree to allow public access on the Lyons Reservoir Watershed Lands, including the alignment of the Sugar Pine Railroad, and any additional lands needed to ensure the continued function of this trail for recreational purposes.

### ***Kings Crane-Helms Regional Bundle***

**Mitigation Measure 6-2.t:** Facilities maintenance funding, Bundle 16: Prior to or concurrent with the transfer of title, the new owner shall by binding written instrument (binding upon successors-in-interest) agree to uphold Pacific Gas and Electric Company's \$6,000,000 funding commitment for resource mitigation and improvement measures as terms of relicensing the Crane Valley license. This would include transfer of Pacific Gas and Electric Company's agreement with the Forest Service to partially fund rehabilitation of Lakeside Picnic Area and The Forks Campground at Bass Lake.

**Mitigation Measure 6-2.u:** Facilities repair, Bundle 16: Prior to or concurrent with the transfer of title, the new owner shall by binding written instrument (binding upon successors-in-interest) agree to carry out the conditions of Pacific Gas and Electric Company's informal agreement with the US Forest Service to complete the repair of flood damage to USFS lands caused by the Brown's Ditch Diversion washout in 1997, an effort estimated to cost \$1,000,000.

**Mitigation Measure 6-2.v:** Resort operation, Bundle 16: Prior to or concurrent with the transfer of title, Pacific Gas and Electric Company shall transfer to the new owner the existing lease arrangement (which shall be made binding upon successors-in-interest) that allows Wishon Village resort to operate on Watershed Lands near Wishon Reservoir.

**Mitigation Measure 6-2.w:** Public access, Bundle 20: Prior to or concurrent with transfer of title, the new owner shall by binding written instrument (binding upon successors-in-interest) agree to provide permanent public access to the reach of the Kern River between the diversion dam and the Kern Canyon powerhouse.

**Alternate Mitigation Measure 6-2.:** As an alternate to Mitigation Measure 6-2.w, above, prior to or concurrent with the transfer of title for any bundle, there shall be recorded against the Watershed Lands within the bundle conservation easements running with the land and (in a form and substance

approved by the CPUC) precluding any further land use development, or expansion of timber interest or mineral extraction activities.

#### **4.6.9.8 Level of Significance After Mitigation**

Implementation of Mitigation Measures 6-2.a through 6-2.w will reduce the potential project impact on land-based recreational opportunities and facilities to a *less than significant* level. Alternatively, implementation of Alternate Mitigation Measure 6-2 together with implementation of Mitigation Measures 6-2.a through 6-2.w would reduce to a less than significant level impacts associated with a new owner operating the facilities and maintaining the land, and would eliminate altogether the impacts associated with land development, mining or timber harvest expansion under a new owner.

#### **4.6.10 IMPACT 6-3: IMPACT, ANALYSIS, AND MITIGATION MEASURES**

**Impact 6-3: The project could cause substantial, adverse effects on the local economy as a result of reduced use of affected recreation areas. (Significant)**

##### **4.6.10.1 Impact 6-3: Shasta Regional Bundle**

###### **Bundle 1: Hat Creek**

###### ***Hat Creek 1 and 2 (FERC 2661)***

***Recreation-Related Spending Changes and Impacts.*** There are no major recreation impacts in this bundle that could result in economic impacts that meet significance criteria identified in section 6.5 of this chapter.

###### **Bundle 2: Pit River**

###### ***Pit 1 (FERC 2687)***

***Recreation-Related Spending Changes and Impacts.*** There are no major recreation impacts in this bundle that could result in economic impacts that meet significance criteria identified in section 6.5 of this chapter.

###### ***Pit 3, 4, and 5 (FERC 0233)***

***Impacts Identified as Less Than Significant.*** None.

***Impacts Identified as Significant.*** None

###### ***Lake Britton***

Project-related changes in hydrologic operations could result in adverse effects on the local economy and, subsequently, on recreational opportunities. Economic effects of the project would result primarily from changes in recreation use at Lake Britton annual recreation use at Lake Britton is estimated at 200,400 visitor days, and annual recreation-related spending is estimated at \$4.2 million based on average spending of \$21 per visitor day. Most recreation use at Lake Britton

is water-oriented, with fishing, boating, and shore use accounting for most of the water-based recreational activity. It is assumed that boating represents 20 percent of total visitor days based on data from Bass Lake.

Under the PowerMax Scenario, opportunities to participate in water-dependent recreational activities at Lake Britton are expected to decrease during normal, wet and dry water years. (The WaterMax Scenario was not modeled because no substantial differences in lake levels were anticipated. See the Hydrology section (4.3) for additional information). Based on reduced boating opportunities, boating activity at Lake Britton could decrease by about 19 percent during the summer recreation season (June through August), by 18 percent during the spring season (April through May), and 67 percent in the fall recreation season (September through October). Based on average local spending of \$21 per visitor day, visitor spending associated with recreation at Lake Britton could decrease by about \$160,000 annually, representing a 4 percent reduction in total recreation-related spending. Opportunities for participating in shore activities, including fishing, are expected to be similar to the baseline condition.

The level of displaced spending is expected to be higher in dry water years and lower in above-average water years. Although recreation-related businesses around Lake Britton would be adversely affected by the reduction in visitor spending, this level of reduced visitor spending is not expected to result in the closure of recreation-related businesses because spending reductions would not exceed 15 percent of total visitor spending at Lake Britton. Businesses that benefit from, or are supported by, visitor spending can be expected to adjust to these levels of reduced spending levels without curtailing operations because reduced spending will be distributed across a diverse range of businesses in many locations. The economic impact of the project on recreational opportunities is considered *less than significant* because no recreation-related business closures are expected.

### ***McCloud-Pit (FERC 2106)***

#### ***McCloud Reservoir***

***Impacts identified as less than significant.*** Project-related changes in hydrologic operations could result in adverse effects on the local economy and, subsequently, on recreational opportunities. Economic effects of the project would result primarily from changes in recreation use at McCloud Reservoir. Annual recreation at McCloud Reservoir is estimated at 108,300 visitor days, and annual recreation-related spending is estimated at \$2.3 million based on average spending of \$21 per visitor day. Most recreation use at McCloud Reservoir is water-oriented, with fishing, boating, and shore use accounting for most of the water-based recreational activity. It is assumed that boating represents 20 percent of total visitor days based on data from Bass Lake.

Under the PowerMax Scenario, opportunities to participate in water-dependent recreational activities at McCloud Reservoir are expected to decrease during normal, wet, and dry water years. (The WaterMax Scenario was not modeled because no substantial differences in lake levels were

anticipated. See the Hydrology Section (4.3) for additional information). Based on reduced boating opportunities, boating activity at McCloud Reservoir could decrease by about 8 percent during the summer recreation season (June through August) and by 12 percent during the spring season (April through May), and 17 percent in the fall recreation season (September through October). Based on average local spending of \$21 per visitor day, visitor spending associated with recreation at McCloud Reservoir could decrease by about \$243,000 annually, representing an 11 percent reduction in total recreation-related spending. Opportunities for participating in shore activities, including fishing, are expected to be similar to the baseline condition

The level of displaced spending is expected to be higher in dry water years and lower in above average water years. Although recreation-related businesses around McCloud Reservoir would be adversely affected by the reduction in visitor spending, this level of reduced visitor spending is not expected to result in the closure of recreation-related businesses because spending reductions would not exceed 15 percent of total visitor spending at McCloud Reservoir. Businesses that benefit from, or are supported by, visitor spending can be expected to adjust to these levels of reduced spending without curtailing operations because reduced spending will be distributed across a diverse range of businesses in many locations. The economic impact of the project on recreational opportunities is considered *less than significant* because no recreation-related business closures are expected.

**Impacts Identified as Significant.** None.

### **Bundle 3: Kilarc-Cow Creek**

#### ***Kilarc-Cow Creek (FERC 0606)***

There are no major recreation impacts in this bundle that could result in economic impacts that meet significance criteria identified in section 6.5 of this chapter.

### **Bundle 4: Battle Creek**

#### ***Battle Creek (FERC 1121)***

There are no major recreation impacts in this bundle that could result in economic impacts that meet significance criteria identified in section 6.5 of this chapter.

### **Impact on Entire Shasta Regional Bundle**

Recreation at Lake Britton and McCloud Reservoir could be reduced due to reduced lake surface elevations. This is expected to result in a reduction of less than 15 percent in local business revenues from recreation spending.

#### 4.6.10.2 Impact 6-3: DeSabra Regional Bundle

##### **Bundle 5: Hamilton Branch**

###### ***Hamilton Branch (non-FERC)***

There are no major recreation impacts in this bundle that could result in economic impacts that meet significance criteria identified in section 6.5 of this chapter.

##### **Bundle 6: Upper North Fork Feather River**

###### ***Upper North Fork Feather River (FERC 2105)***

###### ***Lake Almanor***

***Impacts Identified as Less Than Significant.*** Recreation impacts at Lake Almanor as a result of a reduction of water levels would be less than the 10 percent significance criteria. Therefore, the economic impacts would be relatively minor and were not evaluated further.

***Impacts Identified as Significant.*** None.

###### ***Butt Valley Reservoir***

***Impacts Identified as Less Than Significant.*** Recreation impacts at Butt Valley Reservoir as a result of a reduction of water levels would be less than the 10 percent significance criteria. Therefore, the economic impacts would be relatively minor and were not evaluated further.

***Impacts Identified as Significant.*** None.

###### ***Bucks Lake***

***Impacts Identified as Less Than Significant.*** Project-related changes in hydrologic operations could result in adverse effects on the local economy and, subsequently, on recreational opportunities. Economic effects of the project would result primarily from changes in recreation use at Bucks Lake. Annual recreation use at Bucks Lake is estimated at 591,700 visitor days, and annual recreation-related spending is estimated at \$12.4 million based on average spending of \$21 per visitor day. Most recreation use at Bucks Lake is water-oriented, with fishing, boating, and shore use accounting for most of the water-based recreational activity. It is assumed that boating represents 40 percent of total visitor days based on site observations and discussions with knowledgeable locals. Under the PowerMax Scenario, opportunities to participate in water-dependent recreational activities at Bucks Lake are expected to decrease during normal, wet, and dry water years. Based on reduced boating opportunities, boating activity at Bucks Lake could decrease by about 25 percent during the summer recreation season (June through August), by 18 percent during the spring season (April through May), and by 35 percent in the fall recreation season (September through October). Based on average local spending of \$21 per visitor day,

spending associated with recreation at Bucks Lake could decrease by about \$1,243,000 annually, representing a 10 percent reduction in total recreation-related spending. Opportunities for participating in shore activities, including fishing, are expected to be similar to the baseline condition.

The WaterMax Scenario, based on average local spending of \$21 per visitor day, would reduce spending at Bucks Lake by about \$497,000 annually, representing a 4 percent reduction in total recreation-related spending.

The level of displaced spending is expected to be higher in dry water years and lower in above average water years. Although recreation-related businesses around Bucks Lake would be adversely affected by the reduction in visitor spending, this level of reduced visitor spending is not expected to result in the closure of recreation-related businesses because spending reductions would not exceed 15 percent of total visitor spending at Bucks Lake. Businesses that benefit from, or are supported by, visitor spending can be expected to adjust to these levels of reduced spending levels without curtailing operations because reduced spending will be distributed across a diverse range of businesses in many locations. The economic impact of the project on recreational opportunities is considered *less than significant* because no recreation-related business closures are expected.

***Rock Creek-Cresta (FERC 1962)***

There are no major recreation impacts in this bundle that could result in economic impacts that meet significance criteria identified in section 6.5 of this chapter.

***Poe (FERC 2107)***

There are no major recreation impacts in this bundle that could result in economic impacts that meet significance criteria identified in section 6.5 of this chapter.

**Bundle 7: Bucks Creek**

***Bucks Creek (FERC 0616)***

There are no major recreation impacts in this bundle that could result in economic impacts that meet significance criteria identified in section 6.5 of this chapter.

**Bundle 8: Butte Creek**

***DeSabra-Centerville (FERC 0803)***

There are no major recreation impacts in this bundle that could result in economic impacts that meet significance criteria identified in section 6.5 of this chapter.

***Lime Saddle (non-FERC)***

There are no major recreation impacts in this bundle that could result in economic impacts that meet significance criteria identified in section 6.5 of this chapter.

***Coal Canyon (non-FERC)***

There are no major recreation impacts in this bundle that could result in economic impacts that meet significance criteria identified in section 4.6.5 of this chapter.

**Impact on Entire DeSabra Regional Bundle**

Recreation at Bucks Lake could be reduced due to reduced lake surface elevations. This impact is expected to result in a reduction of less than 15 percent in local business revenues from recreation spending.

**4.6.10.3 Impact 6-3: Drum Regional Bundle**

**Bundle 9: North Yuba River**

***Narrows (FERC 1403)***

Angling-related businesses in the region of the Yuba River rely heavily on the fishery. As an example, the owner of Nevada City Anglers, Jeremy Gray, estimates that 90 percent of his business relies on the Yuba River. It is estimated that a yearly average of 15 to 20 people fish the river per day (J. Gray, personal comm.) or about 5,475 to 7,300 anglers per year. An estimated 1400 to 1800 anglers could be affected during October, November and December when a significant impact on the fishery is projected. Although the impact on angler activity and spending cannot be accurately predicted, revenues of fishing-related businesses can be expected to decline, particular during the late fall and early winter months. Applying measures related to minimum flow levels for the Yuba River would mitigate this impact.

**Bundle 10: Potter Valley**

***Potter Valley (FERC 0077)***

***Impacts Identified as Less Than Significant.*** Project-related changes in hydrologic operations of the Potter Valley project could result in adverse impacts on the local economy and subsequently on recreational opportunities. Economic effects of the project would primarily result from changes in whitewater boating use of the Pillsbury and Lower Eel River whitewater runs. Annual boating use of the whitewater runs totals an estimated 1,860 boater days under baseline conditions. Related whitewater boating-related spending is estimated to be about \$112,000 annually based on average spending of \$60 per visitor day.

Based on hydrologic modeling for the PowerMax Scenario, opportunities to participate in whitewater boating along the Pillsbury Run, which is lightly used, are expected to increase during spring and summer months for boating activities dependent on lower flows (i.e., 500-1,000 cfs) and

to decrease during spring months for boating dependent on higher flows (i.e., 1,000-2,000 cfs). Taken together, use of the Pillsbury Run is estimated to decrease by a net average of 25 boater days annually relative to the baseline use level. Conversely, opportunities to participate in whitewater boating along the Lower Eel River runs, which are more heavily used than the Pillsbury Run, are expected to decrease during spring months for boating activities dependent on lower flows (i.e., 300-1,000 cfs) and to increase during spring months for boating dependent on higher flows (i.e., 1,000-5,000 cfs). These changes in use are expected to almost offset each other, resulting in a net decrease of an estimated 20 boater days along the Eel River runs compared to baseline use. Based on average boating-related spending of \$60 per boater day, the expected reductions in use of the Pillsbury and Lower Eel River runs are estimated to result in the loss of \$2,700 in spending annually. Although adverse, this reduction would represent only 2.4 percent of estimated spending under baseline conditions. Consequently, this impact is considered *less than significant* because the reduced spending would not exceed the 15-20 percent significance threshold established for Impact 6-3, indicating that no local businesses that depend on boating-related spending are expected to close under the PowerMax Scenario.

Hydrologic modeling for the WaterMax Scenario indicates that opportunities to participate in whitewater boating along the Pillsbury and Lower Eel River runs would be similar to opportunities under baseline conditions. Consequently, no economic impact on local businesses would result from implementation of the WaterMax Scenario.

**Impacts Identified as Significant.** None.

#### **Bundle 11: South Yuba River**

##### ***Drum-Spaulding (FERC 2310)***

**Impacts Identified as Less Than Significant.** Project-related changes in hydrologic operations of the Drum-Spaulding license could result in adverse impacts on the local economy and subsequently on recreational opportunities. Economic effects of the project would primarily result from changes in water-contact recreational opportunities and whitewater boating opportunities along the South Yuba River and from changes in whitewater boating opportunities along Fordyce Creek. Annual recreational use of the South Yuba River is estimated at 56,730 visitor days related to water-contact recreation and 29,460 boater days related to whitewater boating under baseline conditions. baseline use of Fordyce Creek for whitewater boating totals an estimated 2,820 boater days. Related spending generated by recreational use of the South Yuba River and Fordyce Creek is estimated to total about \$3.1 million annually based on average spending of \$21 per visitor day for water-contact recreation and \$60 per boater day for whitewater boating.

Based on hydrologic modeling for the PowerMax Scenario, opportunities to participate in water contact recreation along the South Yuba River are expected to slightly decrease during spring and fall months and to remain similar to baseline levels during summer months, resulting in an annual average decrease of 50 visitor days. Similarly, whitewater boating opportunities are expected to

decrease during spring and summer months for boating activities dependent on lower flows (i.e., 700-1,200 cfs), resulting in a decrease of 70 boater days. Along Fordyce Creek, whitewater boating opportunities are expected to decrease during summer months for boating activities dependent on lower flows (i.e., 125-250 cfs) and to increase for boating activities requiring higher flows (i.e., 250-700 cfs) during summer months and to decrease during fall months, resulting in a net increase of 30 boater days along Fordyce Creek. Taken together, recreational use of the South Yuba River and Fordyce Creek is estimated to decrease by a average of 50 visitor days for water-contact recreation and to decrease by an average of 40 boater days for whitewater boating. Based on average spending of \$21 per visitor day for water-contact recreation and \$60 per boater day for whitewater boating, the expected reductions in use of the South Yuba River and Fordyce Creek are estimated to result in the loss of \$3,450 in spending annually. Although adverse, this reduction would represent only 0.1 percent of estimated spending under baseline conditions. Consequently, this impact is considered *less than significant* because the reduced spending would not exceed the 15-20 percent significance threshold established for Impact 6-3, indicating that no local businesses that depend on boating-related spending are expected to close under the PowerMax Scenario.

Hydrologic modeling for the WaterMax Scenario indicates that opportunities to participate in water contact recreation along the South Yuba River are expected to decrease during spring and summer months and to increase during fall months relative to baseline levels, resulting in a net annual average decrease of 4,650 visitor days. Similarly, whitewater boating opportunities are expected to decrease during spring and summer months for boating activities dependent on lower flows (i.e., 700-1,200 cfs), resulting in a decrease of 100 boater days. Along Fordyce Creek, whitewater boating opportunities are expected to decrease during summer and fall months for boating activities dependent on lower flows (i.e., 125-250 cfs) and to increase for boating activities requiring higher flows (i.e., 250-700 cfs) during summer months and to decrease during fall months, resulting in a net increase of 320 boater days along Fordyce Creek. Taken together, recreational use of the South Yuba River and Fordyce Creek is estimated to decrease by an average of 4,650 visitor days for water-contact recreation and to increase by an average of 220 boater days for whitewater boating. Based on average spending of \$21 per visitor day for water-contact recreation and \$60 per boater day for whitewater boating, the expected net reduction in use of the South Yuba River and Fordyce Creek are estimated to result in the loss of \$84,450 in spending annually. Although adverse, this reduction would represent only 2.7 percent of estimated spending under baseline conditions. Consequently, this impact is considered *less than significant* because the reduced spending would not exceed the 15-20 percent significance threshold established for Impact 6-3, indicating that no local businesses that depend on boating-related spending are expected to close under the WaterMax Scenario.

***Impacts Identified as Significant.*** None

An estimated 5,225 visits were made to the Lake Spaulding Campground in 1996. The percentage of visitors that use the boat ramp is unknown; however, based on the visitorship to the

campground, it is estimated that boating activity could decrease by about 13 percent under project conditions. Boaters that are displaced would likely travel to Donner Lake, Lake Tahoe or other reservoirs in the region for similar recreational opportunities. Although the impact of local recreation-serving businesses would be adverse, the impact is considered *less than significant* because local businesses are not expected to close.

### **Bundle 12: Chili Bar**

#### **Chili Bar (FERC 2155)**

***Impacts Identified as Less Than Significant.*** Under project conditions, there would be no substantial effects on the local economy resulting from changes in land use development, timber harvest practices, mineral extraction, or allocations of water supply. Consequently, local businesses and communities that depend on recreation-related spending would not be substantially affected by the project. This impact is considered *less than significant*.

***Impacts Identified as Significant.*** Under the PowerMax and WaterMax Scenarios, whitewater boating opportunities along the South Fork of the American River could be adversely affected because a new owner could change operation of the Chili Bar license. It is assumed that a new owner would shift releases from the morning to the afternoon for power generation purposes.

It is estimated that the commercial whitewater boating accounts for about 84,500 whitewater boating days and private boating accounts for about 39,000 whitewater boating days annually along the reach of the South Fork affected by releases from Chili Bar. Under project conditions, long term displacement of commercially provided boating days is estimated to be about 57 percent and displacement of private boating days to be about 46 percent. This reduction is expected to occur primarily during July, August, and September, with lesser impacts during June. Reductions of this magnitude are expected to severely impact commercial whitewater boating companies that operate along the South Fork, likely resulting in the closure of one or more businesses that provide commercial whitewater outfitting services. The closure of these businesses is expected to further reduce whitewater boating opportunities along the South Fork and is therefore considered *significant*.

#### **Impact to Entire Drum Regional Bundle**

Under the project, recreation-related economic effects associated with the Drum Regional Bundle would primarily result from decreased boating and other river-related uses of rivers that are part of the Potter Valley, Drum-Spaulding, and Chili Bar licenses. While adverse, reduced visitor spending caused by decreases in recreational opportunities associated with the Potter Valley and Drum-Spaulding licenses would be minor relative to baseline levels for both the PowerMax and WaterMax Scenarios. These impacts are considered *less than significant*. For the Chili Bar FERC project, however, reduced whitewater boating opportunities are expected to severely impact commercial whitewater boating companies that operate along the South Fork of the American

River, likely resulting in the closure of one or more businesses that provide commercial whitewater outfitting services. The closure of these businesses is expected to further reduce whitewater boating opportunities along the South Fork and is therefore considered *significant*.

### 4.6.10.4 Impact 6-3: Motherlode Regional Bundle

#### Bundle 13: Mokelumne River

##### *Mokelumne River (FERC 0137)*

***Impacts Identified as Less Than Significant.*** Project-related changes in hydrologic operations of the Mokelumne River license could result in impacts on the local economy and subsequently on recreational opportunities. Economic effects of the project would primarily result from changes in whitewater boating use of the Tiger Creek, Tiger Creek Dam, and Electra whitewater runs. Annual boating use of the whitewater runs totals an estimated 5,090 boater days under baseline conditions. Related whitewater boating-related spending is estimated to be about \$305,300 annually based on average spending of \$60 per visitor day.

Based on hydrologic modeling for the PowerMax Scenario, opportunities to participate in whitewater boating along the Tiger Creek Run are expected to remain unchanged during spring months and to increase during summer months for boating activities dependent on lower flows (i.e., 700-900 cfs) and moderate flows (i.e., 900-1,500 cfs). Based on these changes, total use of the Tiger Creek Run is estimated to increase by an average of 150 boater days annually relative to the baseline use level. Whitewater boating opportunities along the Tiger Creek Dam Run are expected to remain similar to baseline opportunities during spring and summer seasons. Opportunities to participate in whitewater boating along the Electra Run are expected to increase during spring and summer months and to decrease during fall months for boating activities dependent on lower flows (i.e., 500-1,000 cfs), and to decrease during spring months and increase during summer months for boating dependent on higher flows (i.e., 1,000-2,000 cfs). These changes in use are expected to almost offset each other, resulting in a net decrease of an estimated 10 boater days along the Electra Run compared to baseline use. Based on average boating-related spending of \$60 per boater day, the expected changes in use of the Tiger Creek, Tiger Creek Dam, and Electra runs are estimated to result in a net increase of \$8,400 in spending annually. Consequently, this impact is considered *less than significant*.

Hydrologic modeling for the WaterMax Scenario indicates that opportunities to participate in whitewater boating along the Tiger Creek Run are expected to decrease during spring months for boating activities dependent on lower flows (i.e., 700-900 cfs), to increase during spring months for boating activities requiring moderate flows (i.e., 900-1,500 cfs), and to increase during summer months for boating requiring high flows (i.e., 1,500-4,000 cfs). Based on these offsetting effects, total use of the Tiger Creek Run is estimated to increase by a net average of about 100 boater days annually relative to the baseline use level. Whitewater boating opportunities along the Tiger Creek Dam Run are expected to decrease during spring months and to increase during summer months,

resulting in a net increase of 25 boater days relative to baseline boating levels. Opportunities to participate in whitewater boating along the Electra Run are expected to increase during spring and summer months for boating activities dependent on lower flows (i.e., 500-1,000 cfs), and to decrease during spring months for boating dependent on higher flows (i.e., 1,000-2,000 cfs). These changes in use are expected to offset each other, resulting in no change in overall whitewater boating opportunities along the Electra Run relative to baseline use levels. Based on average boating-related spending of \$60 per boater day, the expected changes in use of the Tiger Creek, Tiger Creek Dam, and Electra runs are estimated to result in a net increase of \$7,500 in spending annually. Consequently, this impact is considered *less than significant*.

**Impacts identified as significant.** None.

#### **Bundle 14: Stanislaus River**

##### ***Spring Gap-Stanislaus (FERC 2130)***

**Impacts Identified as Less Than Significant.** Project-related changes in hydrologic operations of the Spring Gap-Stanislaus license could result in adverse impacts on the local economy and subsequently on recreational opportunities. Economic effects of the project would primarily result from changes in instream recreational opportunities (i.e., water-contact and angling uses) along the Middle Fork Stanislaus River below Relief Reservoir and reservoir recreational opportunities (i.e., water-contact, angling, boating uses) at Strawberry Reservoir (Pinecrest Lake). Annual recreational use of the Middle Fork Stanislaus River below Relief Reservoir is estimated at about 5,000 visitor days related to water-contact recreation and angling under baseline conditions. Baseline recreational use of resources in the Pinecrest Basin, which include Pinecrest Lake, is estimated at about 997,500 visitor days. Related spending generated by recreational use of the Middle Fork Stanislaus River and resources within the Pinecrest Basin is estimated to total about \$21.1 million annually based on average spending of \$21 per visitor days, including \$105,000 related to use of the Middle Fork Stanislaus River and \$20.9 million related to use of the Pinecrest Basin.

Based on hydrologic modeling for the PowerMax Scenario, opportunities to participate in recreation along the Middle Fork Stanislaus River are expected to decrease during summer and fall months, resulting in an annual average decrease of 690 visitor days. Similarly, opportunities to participate in water-dependent recreational activities at Pinecrest Lake are expected to decrease during the spring, summer, and fall recreation seasons. Based on reduced boating opportunities, recreation use at Pinecrest Lake could decrease by about 11 percent during the spring recreation season, by 3 percent during the summer season, and by 32 percent during the fall recreation season. It is estimated that spring, summer, and fall use account for about 10 percent, 80 percent, and 10 percent, respectively, of the total use, and that 20 percent of recreation use in the Pinecrest Basin is boating related; consequently, recreation use under the PowerMax Scenario could decrease by an estimated 13,400 visitor days annually. Based on average spending of \$21 per visitor day, the

expected reductions in use of the Middle Fork Stanislaus River and Pinecrest Lake are estimated to result in the loss of \$295,900 in spending annually, including \$14,500 associated with reduced use of the Middle Fork Stanislaus River and \$281,400 associated with reduced use of Pinecrest Lake. Although adverse, this reduction would represent only 1.4 percent of estimated spending under baseline conditions. Consequently, this impact is considered *less than significant* because the reduced spending would not exceed the 15-20 percent significance threshold established for Impact 6-3, indicating that no local businesses that depend on boating-related spending are expected to close under the PowerMax Scenario.

Hydrologic modeling for the WaterMax Scenario indicates that opportunities to participate in recreation along the Middle Fork Stanislaus River are expected to decrease during summer and fall months, resulting in an annual average reduction of 650 visitor days. Opportunities to participate in water-dependent recreational activities at Pinecrest Lake are expected to decrease during the spring and fall recreation seasons but to remain similar to baseline levels during the summer recreation season, although some recreational facilities would be less available and others more available compared to baseline conditions. Based on reduced boating opportunities during the fall and spring seasons, recreation use at Pinecrest Lake could decrease by about 17 percent during the spring recreation season and by 9 percent during the fall season. Consequently, recreation use under the WaterMax Scenario could decrease by an estimated 5,200 visitor days annually. Based on average spending of \$21 per visitor day, the expected reductions in use of the Middle Fork Stanislaus River and Pinecrest Lake are estimated to result in the loss of \$122,900 in spending annually, including \$13,700 associated with reduced use of the Middle Fork Stanislaus River and \$109,200 associated with reduced use of Pinecrest Lake. Although adverse, this reduction would represent only 10.6 percent of estimated spending under baseline conditions. Consequently, this impact is considered *less than significant* because the reduced spending would not exceed the 15-20 percent significance threshold established for Impact 6-3, indicating that no local businesses that depend on boating-related spending are expected to close under the WaterMax Scenario.

**Impacts Identified as Significant.** None.

### ***Phoenix License Facilities (FERC 1061)***

**Impacts Identified As Less Than Significant.** Under project conditions, there would be no substantial effects on the local economy resulting from changes in hydrologic operations of the Phoenix license facilities or from changes in land use development, timber harvest practices, mineral extraction, or allocations of water supply. Consequently, local businesses and communities that depend on recreation-related spending would not be substantially affected by the project. This impact is considered *less than significant*.

**Impacts Identified as Significant.** None.

**Bundle 15: Merced River*****Merced Falls (FERC 2467)***

***Impacts Identified as Less Than Significant.*** Under project conditions, there would be no substantial effects on the local economy resulting from changes in hydrologic operations of the Merced Falls license or from changes in land use development, timber harvest practices, mineral extraction, or allocations of water supply. Consequently, local businesses and communities that depend on recreation-related spending would not be substantially affected by the project. This impact is considered *less than significant*.

***Impacts Identified as Significant.*** None.

**Impact to Entire Motherlode Regional Bundle**

Under the project, recreation-related economic effects associated with the Motherlode Regional Bundle would primarily result from decreased boating and reservoir-related uses of the Middle Fork Stanislaus River and Pinecrest Reservoir. Reduced recreational opportunities at these facilities would result in estimated decreased visitor spending totaling \$295,000 under the PowerMax Scenario and \$122,900 under the WaterMax Scenario. While these reductions in spending would be adverse, they are not large relative to baseline spending levels, and are therefore not expected to result in business closures or subsequent reductions in recreational opportunities within the regional bundle. This impact is considered *less than significant*.

**4.6.10.5 Impact 6-3: Kings Crane-Helms Regional Bundle****Bundle 16: Crane Valley**

***Impacts Identified as Less Than Significant.*** Under project conditions, there would be no effects on the local economy resulting from changes in land use development, timber harvest practices, mineral extraction, or allocations of water supply because land use practices in the vicinity of affected reservoirs, rivers, and watershed lands are not expected to change and no changes are expected in water supply contracts. Project-related changes in hydrologic operations, however, could result in adverse effects on the local economy and, subsequently, on recreational opportunities.

Economic effects of the project would result primarily from changes in recreation use at Bass Lake. Annual recreation use is estimated at 640,000 visitor days at Bass Lake, and annual recreation-related spending is estimated at \$13.4 million based on average spending of \$21 per visitor day. Most recreation use at Bass Lake is water-oriented, with fishing, boating, and shore use accounting for most of the water-based recreational activity. Under the PowerMax and WaterMax Scenarios, opportunities to participate in water-dependent recreational activities at Bass Lake are expected to decrease during normal water years, dry, and critically dry years. Opportunities for participating in shore activities, including fishing, are expected to be similar to the baseline condition.

As described in Analytical methods (section 4.6.6), based on reduced boating opportunities, recreation use at Bass Lake could decrease by about 37 percent during the summer recreation season (June through August) and by 44 percent during the spring season (April through May). (Use would remain unchanged during the fall recreation season.) It is estimated that summer and spring use account for about 80 percent and 10 percent, respectively, of the total use, and that 20 percent of recreation use is boating related; consequently, recreation use under the PowerMax Scenario could decrease by an estimated 44,900 visitor days annually. Based on average local spending of \$21 per visitor day, visitor spending associated with recreation at Bass Lake could decrease by about \$940,000 annually, representing a 7.0 percent reduction in total recreation-related spending.

Under the WaterMax Scenario, opportunities to participate in water-dependent recreational activities at Bass Lake are expected to decrease by an estimated 12 percent during the summer recreation season and by 4 percent during the spring season. Consequently, recreation use under the WaterMax Scenario could decrease by an estimated 13,200 visitor days annually, and visitor spending associated with recreation at Bass Lake could decrease by about \$280,000 annually, representing a 2.1 percent decrease in total recreation-related spending.

Under both operational scenarios, the level of displaced spending is expected to be higher in dry and critically dry water years and lower in above average water years. Although recreation-related businesses around Bass Lake would be adversely affected by the reduction in visitor spending, this level of reduced visitor spending is not expected to result in the closure of recreation-related businesses because spending reductions would not exceed 15 percent of total visitor spending at Bass Lake. Businesses that benefit from or are supported by visitor spending can be expected to adjust to these levels of reduced spending levels without curtailing operations because reduced spending will be distributed across a diverse range of businesses in many locations. The economic impact of the project on recreational opportunities is considered *less than significant* because no recreation-related business closures are expected.

***Impacts Identified as Significant.*** None.

### **Bundle 17: Kerckhoff**

#### ***Kerckhoff (FERC 0096)***

***Impacts Identified as Less Than Significant.*** Under project conditions, effects on the local economy resulting from changes in operations or use of Kerckhoff Reservoir and Kerckhoff license lands are expected to be minor because potential changes in hydrologic operations under the project would be minor relative to baseline operations. Similarly, timber harvest practices, mineral extraction, and allocations of water supply are not expected to change because timber harvesting and mineral extraction practices in the vicinity of affected Kerckhoff Reservoir, the San Joaquin River, and Watershed Lands are not expected to change, and no changes are expected in water supply contracts. Project-related changes in land use development could result in effects on the

local economy, although effects would be minor. The economic impact of the project on recreational opportunities is considered *less than significant* because no recreation-related business closures are expected.

**Impacts Identified As Significant.** None.

#### **Bundle 18: Kings River**

***Helms Pumped Storage (FERC 2735), Haas-Kings River (FERC 1988), Balch (FERC 0175)***

**Impacts Identified As Less Than Significant.** Under project conditions, there would be no effects on the local economy resulting from changes in hydrologic operations, mineral extraction, or allocations of water supply because hydrologic operations are not expected to change; mineral extraction practices in the vicinity of affected reservoirs, rivers, and watershed lands are not expected to change; and no changes are expected in water supply contracts. Selection timber harvests on approximately 100 acres of watershed land near Wishon Reservoir could occur under the project, but economic effects resulting from more-intensive harvests on 100 acres would be relatively minor in the context of the regional economy, and the harvests are not expected to substantially affect recreation-use levels or opportunities. This impact is considered *less than significant*.

**Impacts Identified as Significant.** Under the PowerMax and WaterMax Scenarios, whitewater boating opportunities along the Kings River could be adversely affected because a new owner could discontinue use of the Keller Ranch property as a parking and staging area for commercial whitewater boating operations. The Keller Ranch property could also be developed in commercial recreation uses under the project, displacing boating-related uses of the property. It is estimated that the commercial whitewater boating companies account for an average of 9,400 of the 11,000-12,500 whitewater boating days annually. Currently, there are no other existing sites in the area that are large enough to accommodate commercial operations. Therefore, if the commercial companies could no longer use the Keller Ranch property, commercial whitewater boating activities would be substantially reduced or possibly eliminated. This impact is considered *significant*, as discussed under Impact 6-1, because the loss of use of the Keller Ranch property by commercial whitewater boating companies could be expected to result in the closure of these businesses and the further reduction of whitewater boating opportunities along the Kings River.

#### **Bundle 19: Tule River**

***Tule River (FERC 1333)***

**Impacts Identified As Less Than Significant.** Under project conditions, there would be no effects on the local economy resulting from changes in hydrologic operations because the Tule River project has no storage that could affect hydrologic conditions. In addition, there would be no effects on the local economy resulting from changes in land use development, timber harvest practices, mineral extraction, or allocations of water supply because land use practices in the

vicinity of the Tule River project are not expected to change and no changes are expected in water supply contracts. Under the project, 35 acres of watershed lands could be developed in low-density residential uses. This development is not expected to adversely affect recreation activities and would have little effect on recreation-related spending or opportunities. Consequently, local businesses and communities that depend on recreation-related spending would not be affected by the project. This impact is considered *less than significant*.

**Impacts Identified as Significant.** None.

### **Bundle 20: Kern Canyon**

#### ***Kern Canyon (FERC 0178)***

**Impacts Identified as Less Than Significant.** Under project conditions, there would be no effects on the local economy resulting from changes in hydrologic operations because the Kern Canyon project has no storage that could affect hydrologic conditions. In addition, there would be no effects on the local economy resulting from changes in land use development, timber harvest practices, mineral extraction, or allocations of water supply because land use practices in the vicinity of the Kern Canyon project are not expected to change and no changes are expected in water supply contracts. Consequently, local businesses and communities that depend on recreation-related spending would not be affected by the project.

**Impacts Identified as Significant.** None.

### **Impact to Entire Kings Crane-Helms Regional Bundle**

Under the project, recreation-related economic effects associated with the Kings Crane-Helms Bundle would primarily result from decreased recreation use of facilities at Bass Lake in Madera County and along the Kings River in Fresno County.

At Bass Lake, opportunities to participate in water-dependent recreational activities are expected to decrease under both the PowerMax and WaterMax Scenarios, resulting in reduced spending in the local area. Visitor spending at recreation-serving businesses near Bass Lake could decrease by an estimated \$940,000 annually under the Maximize Power Supply Scenario and by about \$280,000 annually under the WaterMax Scenario. Because this potential reduction in visitor spending represents less than 10 percent of total visitor spending at Bass Lake, it is not expected to result in the closure of any recreation-serving businesses near Bass Lake or any further reduction in recreational opportunities at Bass Lake.

Along the Kings River, whitewater boating opportunities could be adversely affected if a new owner of the Haas-Kings River license does not allow commercial boating companies to continue to use the Keller Ranch property as a parking and staging area for whitewater boating. The Keller Ranch property could also be developed in commercial recreation uses under the project, which would displace parking-related uses of the property. Loss of the use of this property by commercial

whitewater boating companies could be expected to result in the closure of these businesses and the further reduction of whitewater boating opportunities, which is considered a *significant impact*.

#### **4.6.10.6 Evaluation of Impact 6-3 to Entire System**

Significant adverse effects on the local economy as a result of reduced use of affected recreation areas were identified for the Chili Bar (Bundle 12) and Kings River (Bundle 18) bundles. These impacts centered on potential project impacts on projected reductions in commercial whitewater rafting activities on the South Fork of the American River and the Keller Ranch property.

#### **4.6.10.7 Impact 6-3: Mitigation Measures**

##### **Mitigation Measures Proposed as Part of the Project**

None.

##### **Mitigation Measures Identified in this Report**

###### ***Shasta Regional Bundle***

None required.

###### ***DeSabra Regional Bundle***

None required.

###### ***Drum Regional Bundle***

***Mitigation Measure 6-3a.*** Implementation of Mitigation Measure 6-1m would reduce the project's potential economic impact on commercial whitewater rafting opportunities in the Chili Bar Bundle, resulting from changes in hydrologic operations to a *less than significant* level.

###### ***Motherlode Regional Bundle***

None required.

###### ***Kings Crane-Helms Regional Bundle***

***Mitigation Measure 6-3b.*** Implement Mitigation Measure 6-1pp.

#### **4.6.10.8 Level of Significance After Mitigation**

Implementation of Mitigation Measures 6-3a and 6-3b would reduce the project's adverse effects on the local economy as a result of reduced use of affected recreation areas to a *less than significant* level.

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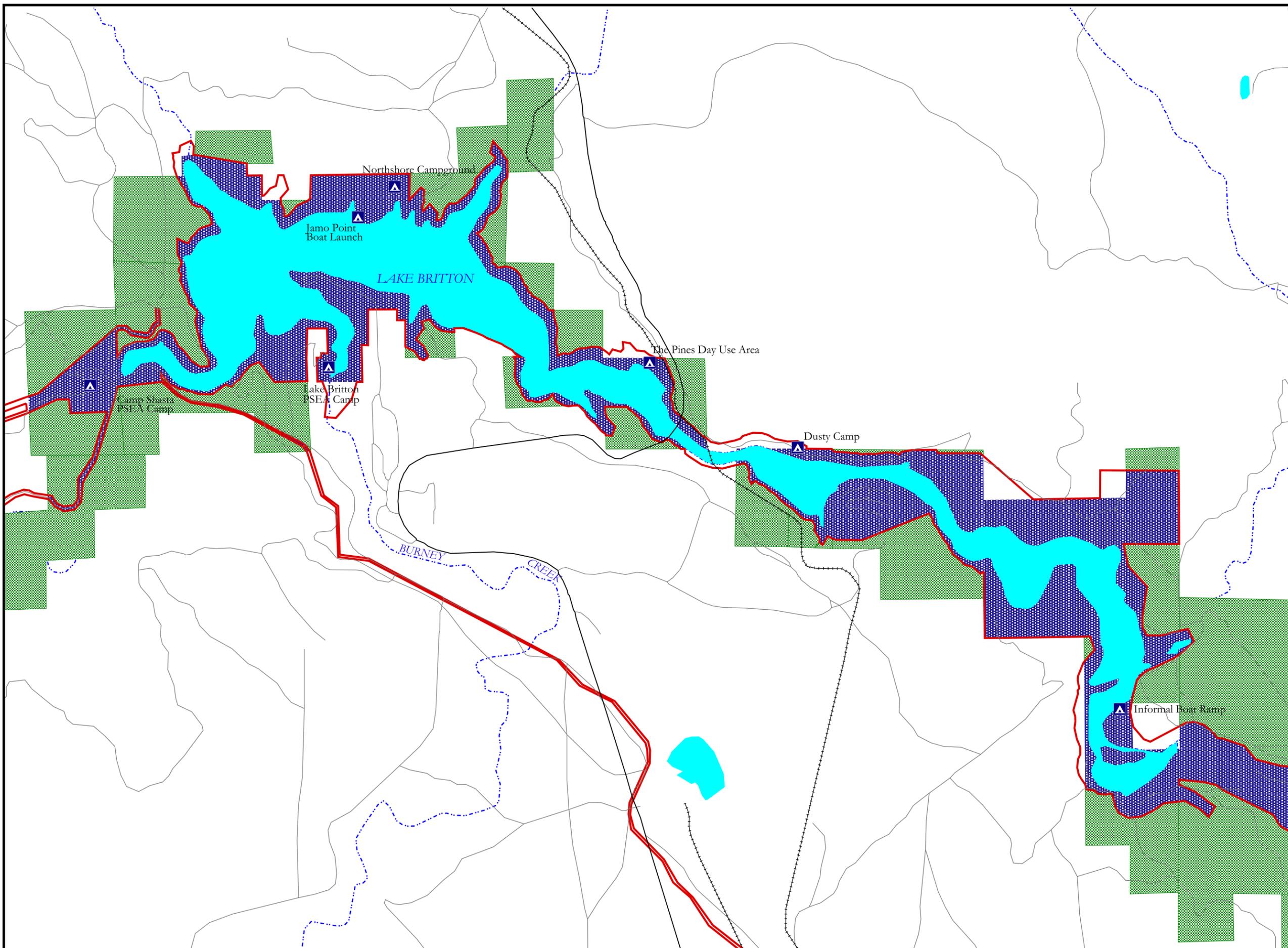
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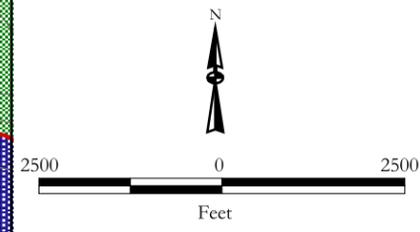
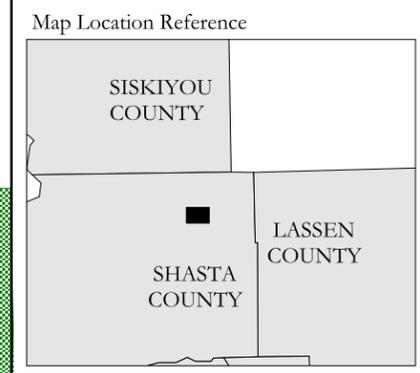
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-  FERC License Area
-  PG&E Land in FERC License Area
-  PG&E Watershed Lands
-  State Highway
-  Roads
-  Stream
-  Recreation Area
-  Waterbody



**Hydrodivestiture EIR**

**Figure 4.6 - 1**  
**Lake Britton**  
**Recreation Area**  
**Shasta Regional Bundle**

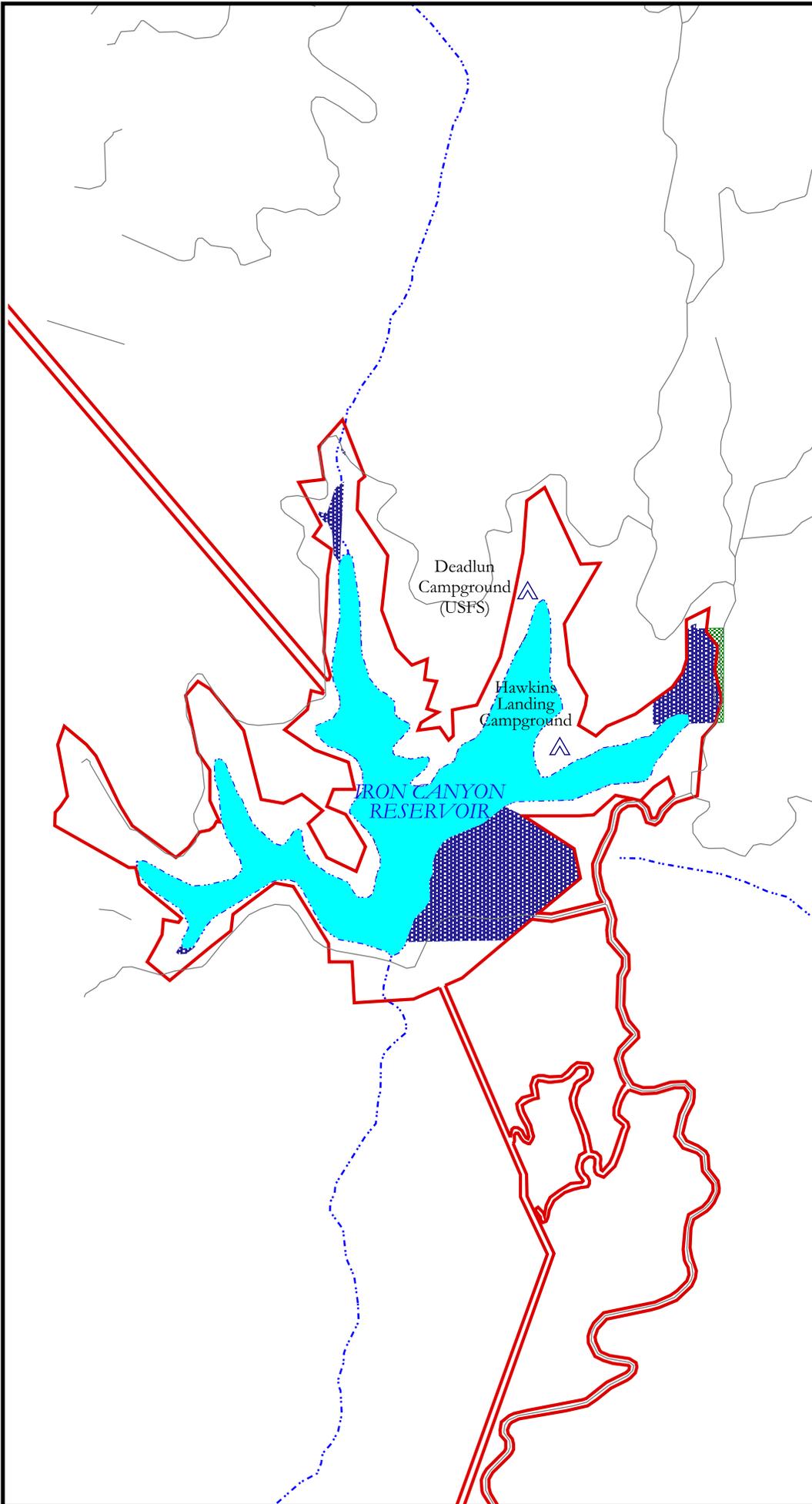
*Aspen*  
 Environmental Group

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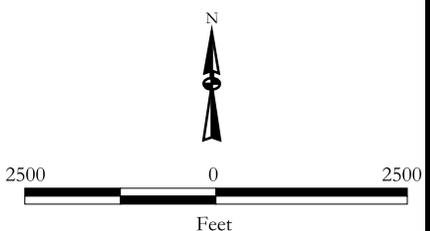
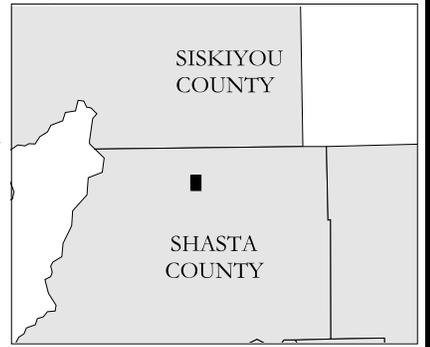
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-  FERC License Area
-  PG&E Land in FERC License Area
-  PG&E Watershed Lands
-  Roads
-  Stream
-  Recreation Area
-  Waterbody

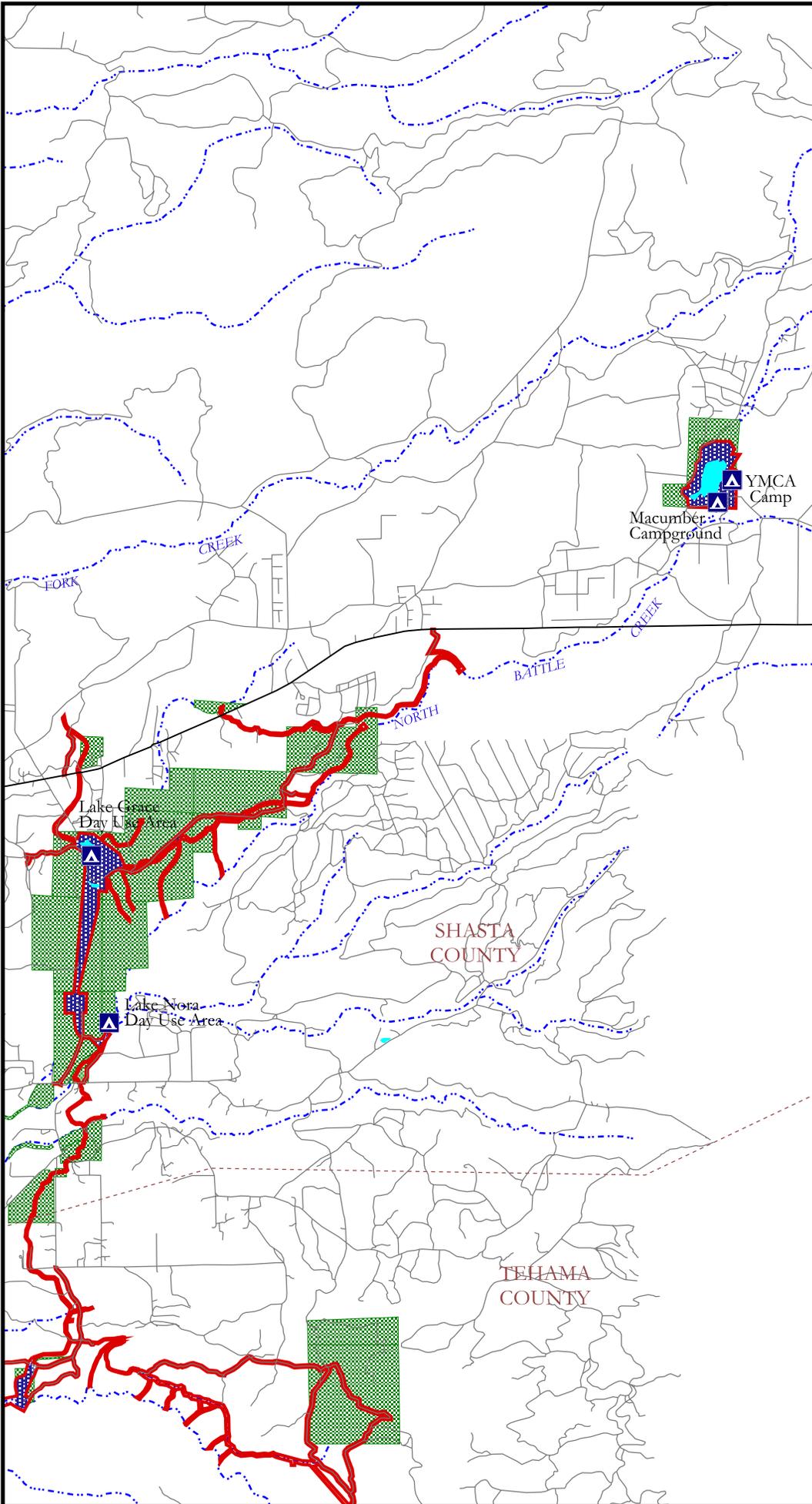
Map Location Reference



**Hydrodivestiture EIR**

**Figure 4.6 - 2**  
**Iron Canyon Reservoir**  
**Recreation Area**  
**Shasta Regional Bundle**





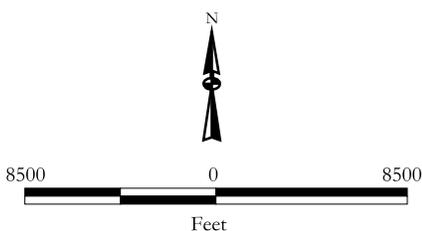
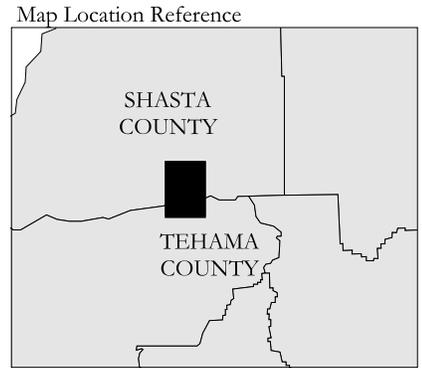
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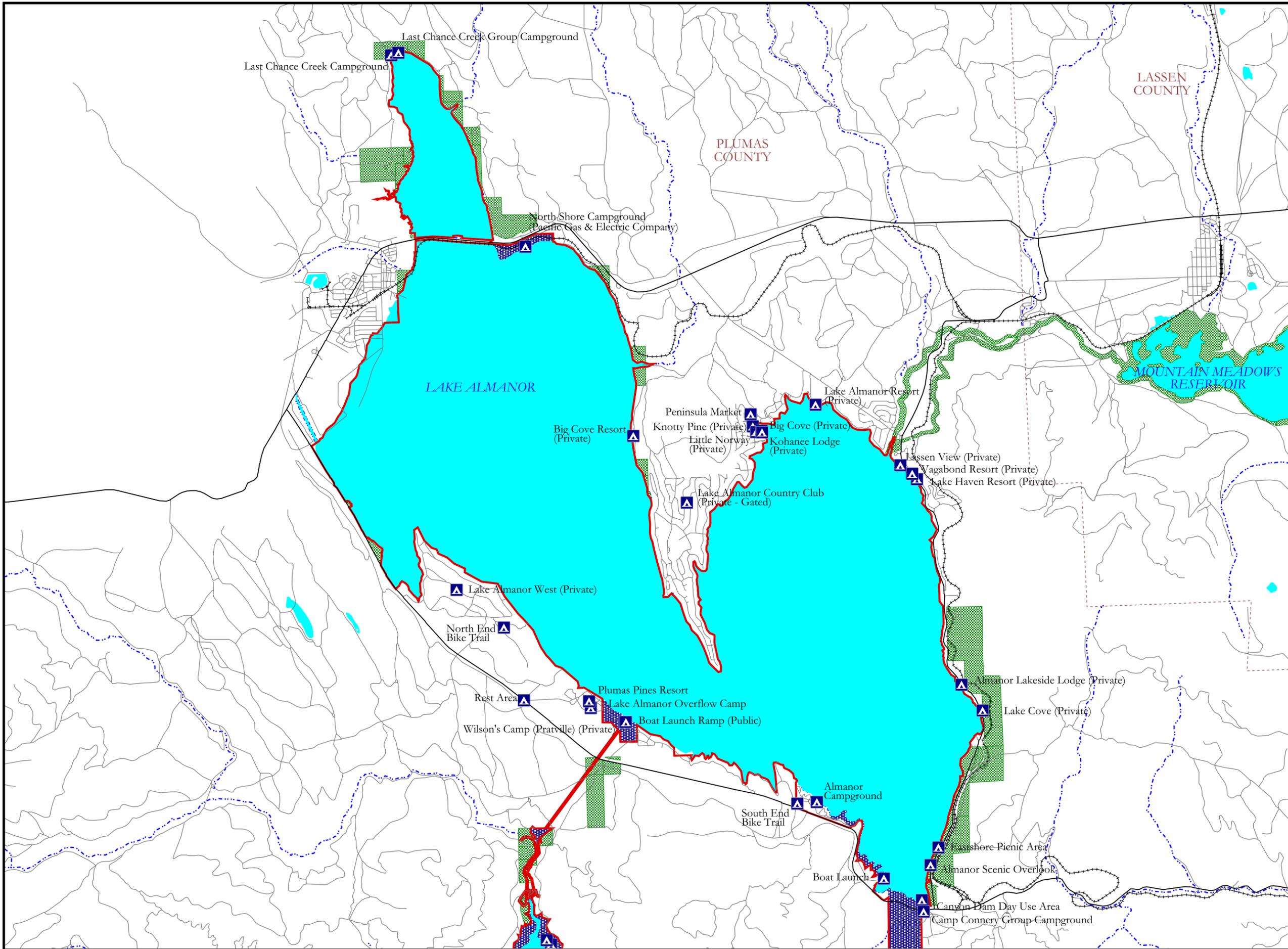
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-  PG&E Land in FERC License Area
-  PG&E Watershed Lands
-  State Highway
-  Roads
-  County Line
-  Stream
-  Recreation Area
-  Waterbody



**Hydrodivestiture EIR**

**Figure 4.6 - 3**  
**North Battle Creek**  
**Recreation Area**  
**Shasta Regional Bundle**

**Aspen**  
*Environmental Group*



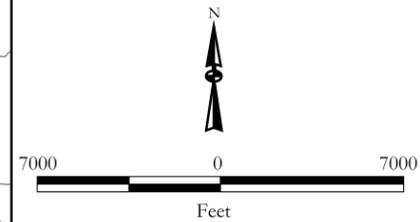
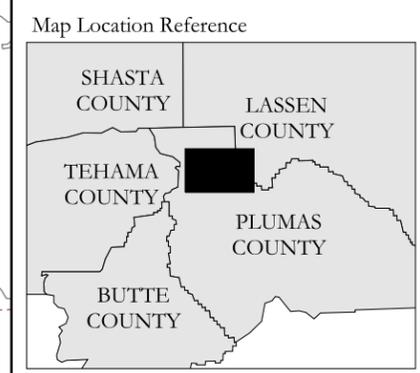
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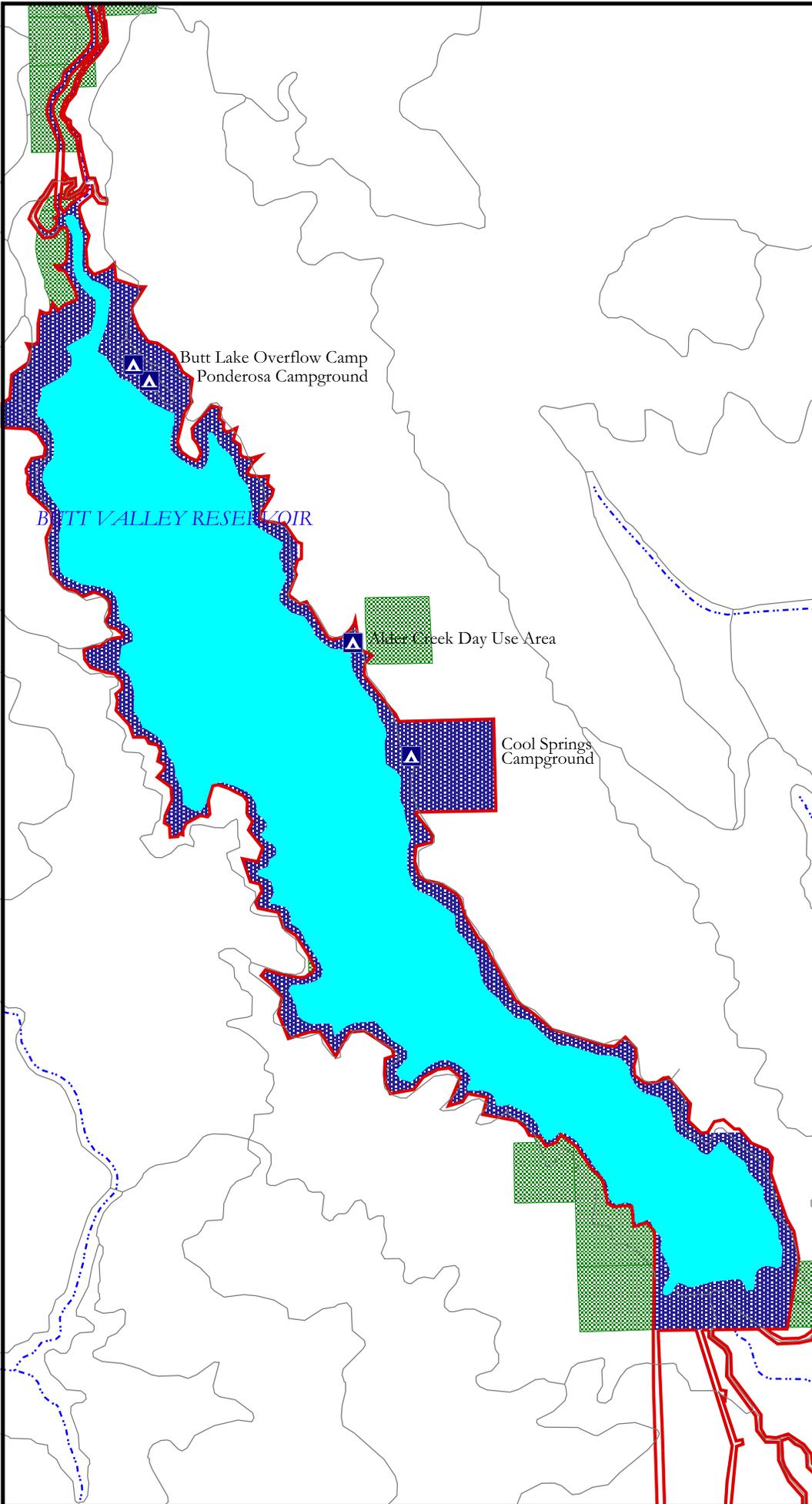
- FERC License Area
- PG&E Land in FERC License Area
- PG&E Watershed Lands
- State Highway
- Roads
- County Line
- Stream
- Recreation Area
- Waterbody



**Hydroinvestiture EIR**

**Figure 4.6 - 4**  
**Lake Almanor**  
**Recreation Area**  
**DeSabra Regional Bundle**

*Aspen*  
 Environmental Group



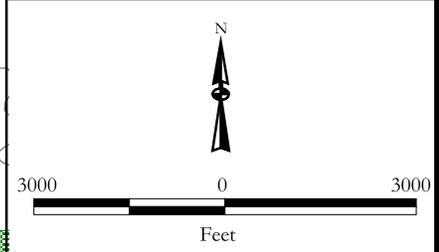
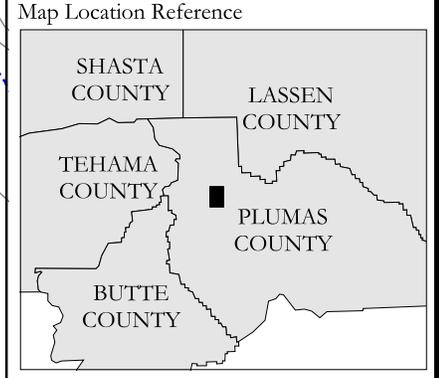
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-  FERC License Area
-  PG&E Land in FERC License Area
-  PG&E Watershed Lands
-  Roads
-  Stream
-  Recreation Area
-  Waterbody



**Hydrodivestiture EIR**

**Figure 4.6 - 5**  
**Butt Valley Reservoir**  
**Recreation Area**  
**DeSabra Regional Bundle**

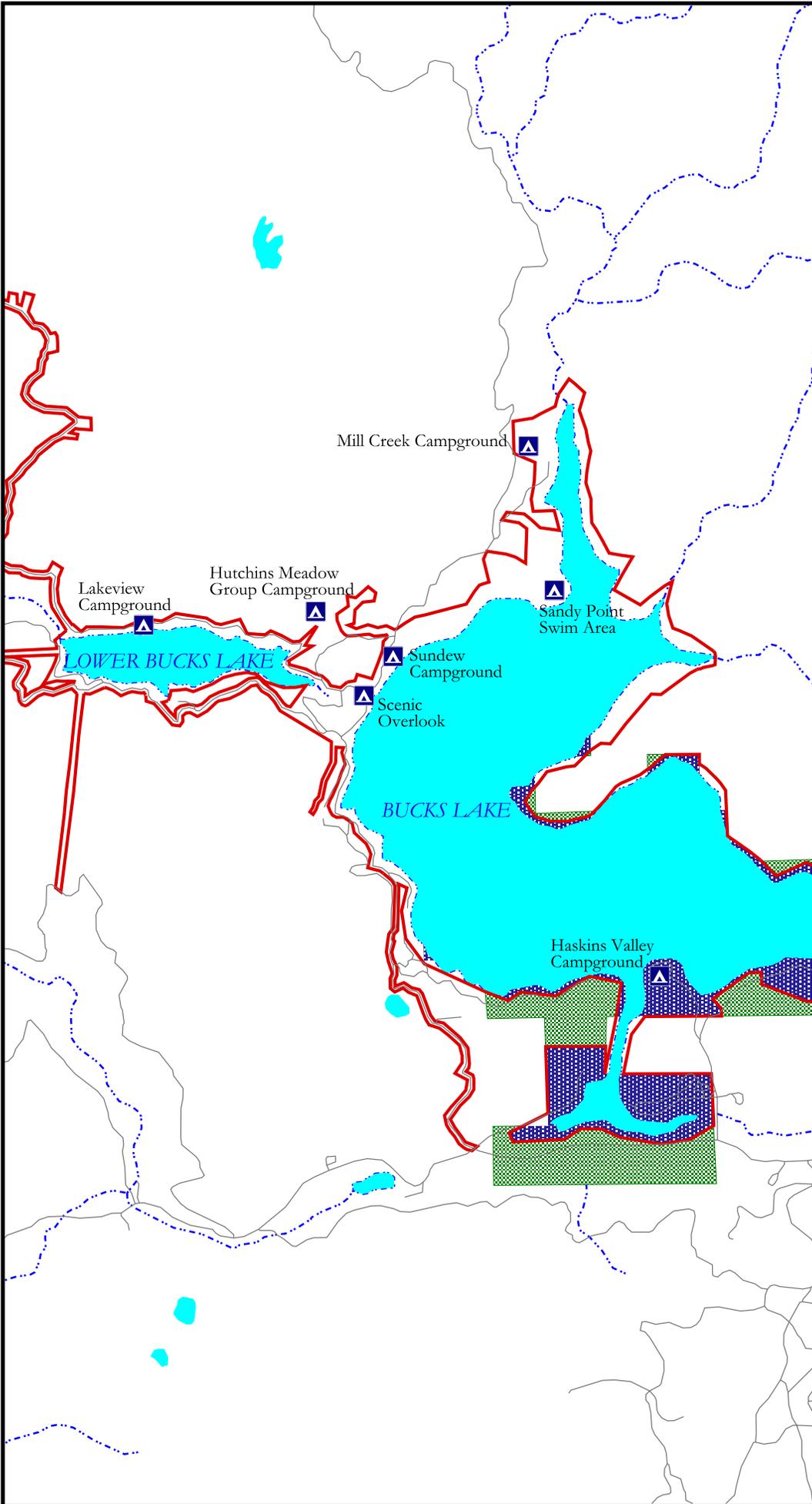
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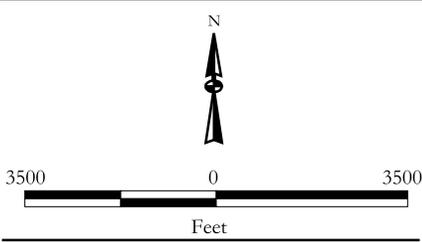
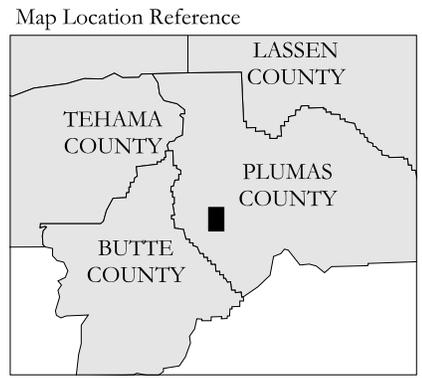
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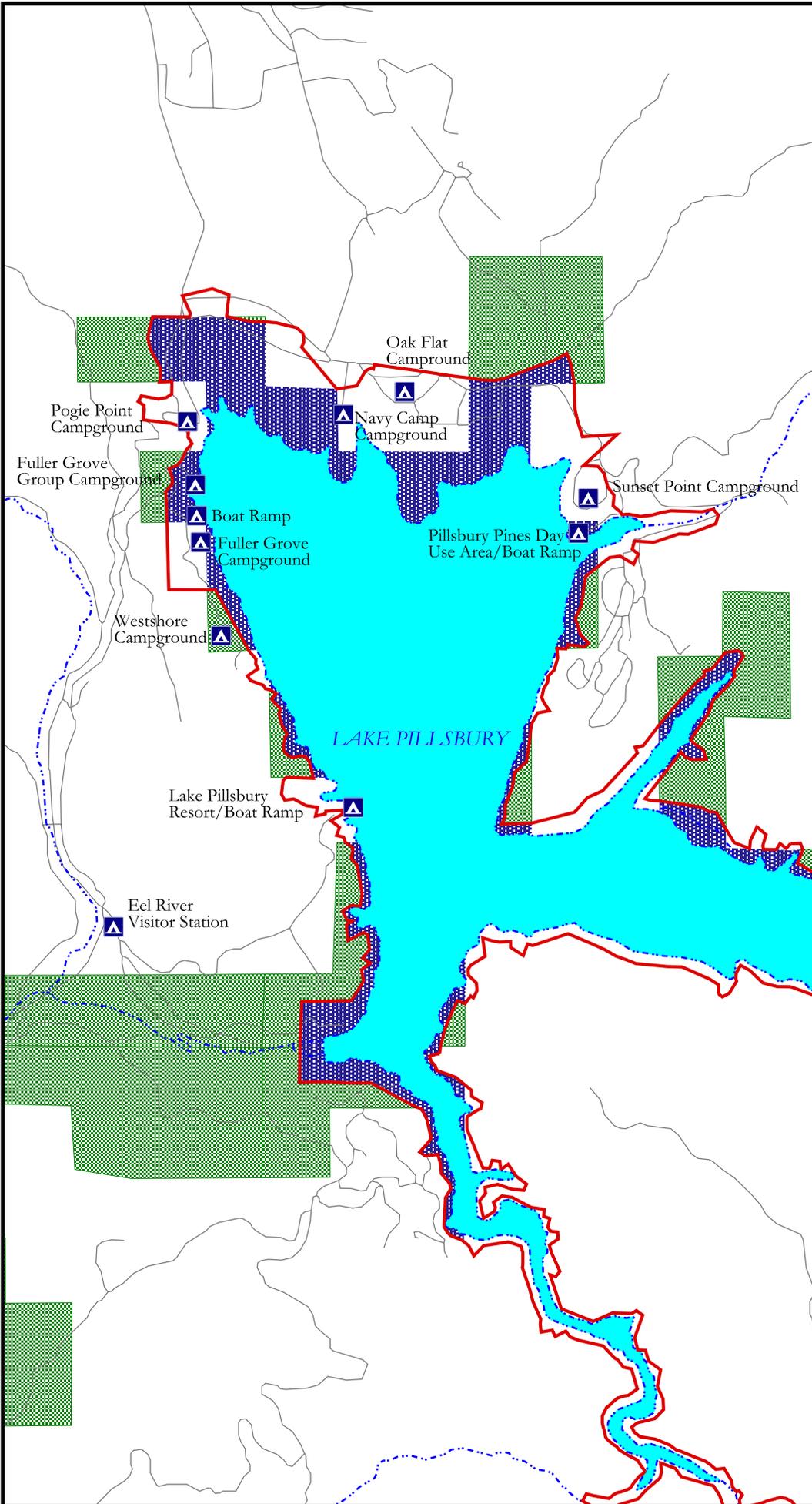
-  FERC License Area
-  PG&E Land in FERC License Area
-  PG&E Watershed Lands
-  Roads
-  Stream
-  Recreation Area
-  Waterbody



**Hydrodivestiture EIR**

**Figure 4.6 - 6**  
**Bucks Lake**  
**Recreation Area**  
**DeSabra Regional Bundle**





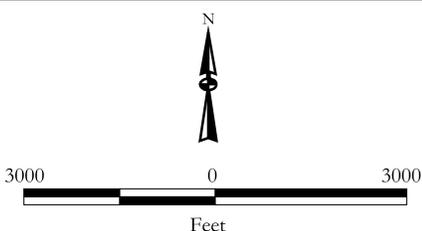
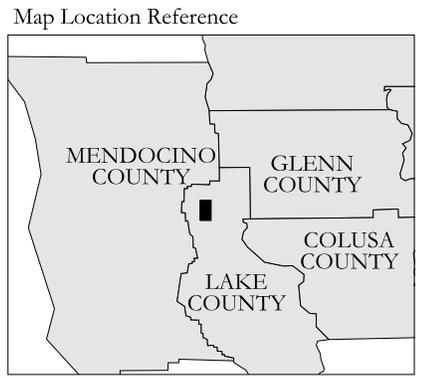
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-  FERC License Area
-  PG&E Land in FERC License Area
-  PG&E Watershed Lands
-  Roads
-  Stream
-  Recreation Area
-  Waterbody



**Hydrodivestiture EIR**

**Figure 4.6 - 7**  
**Lake Pillsbury**  
**Recreation Area**  
**Drum Regional Bundle**

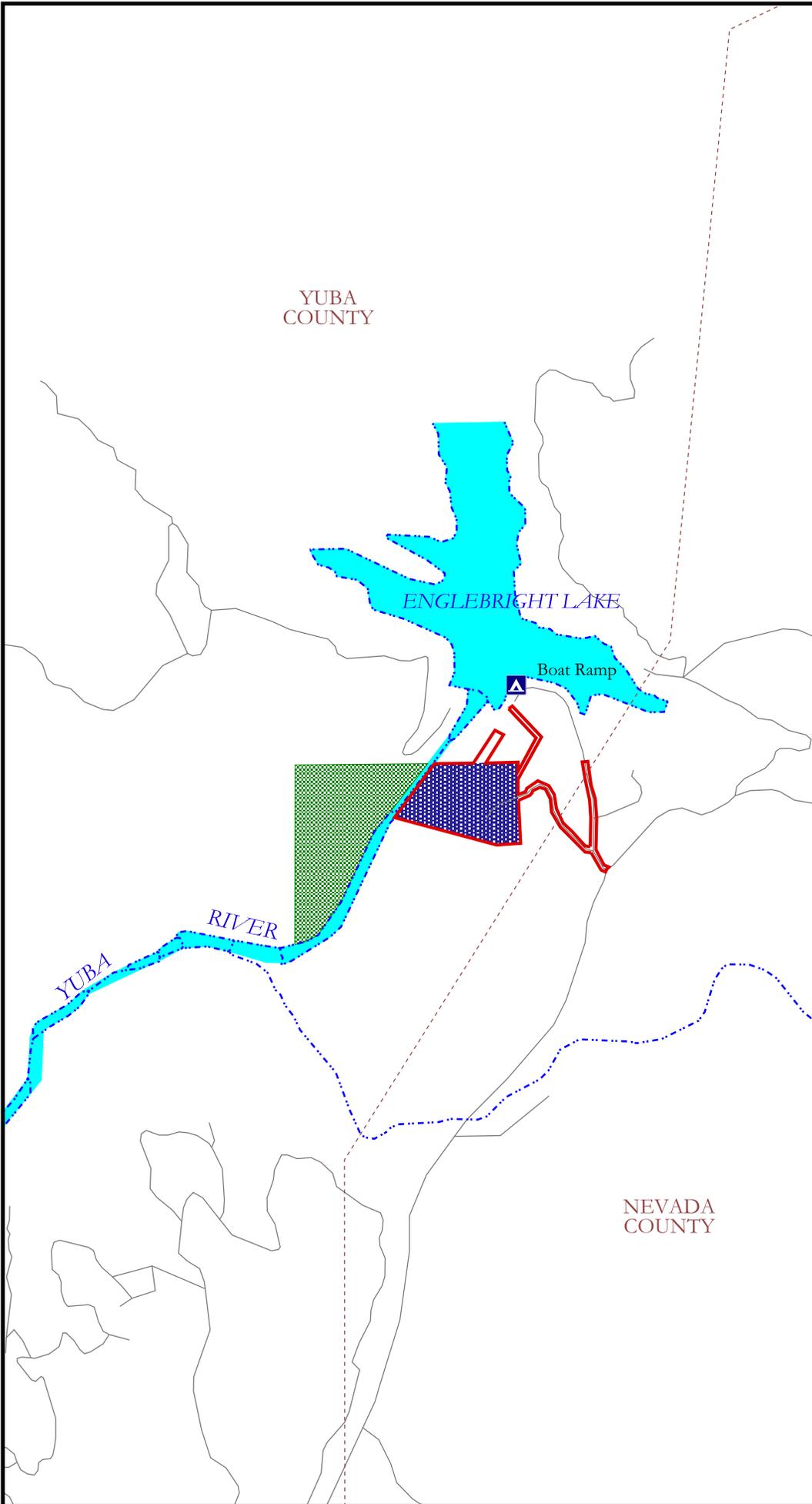


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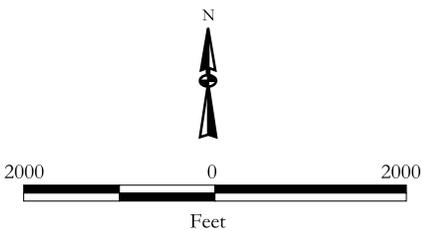
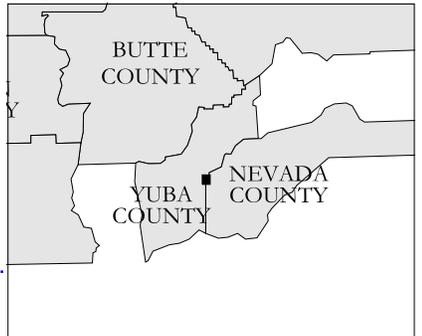
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-  FERC License Area
-  PG&E Land in FERC License Area
-  PG&E Watershed Lands
-  Roads
-  County Line
-  Stream
-  Recreation Area
-  Waterbody

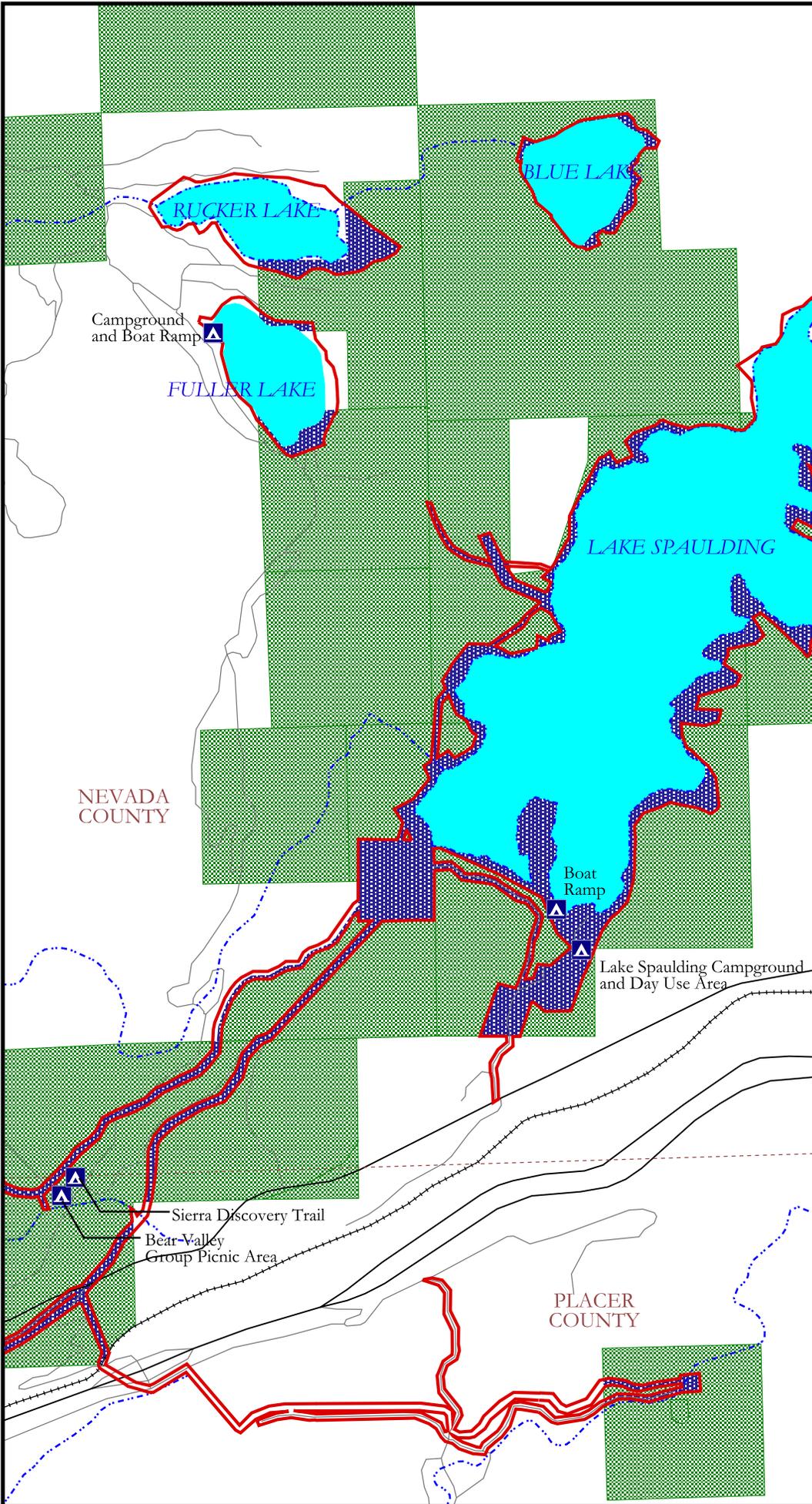
Map Location Reference



**Hydrodivestiture EIR**

**Figure 4.6 - 8**  
**Englebright Lake**  
**Recreation Area**  
**Drum Regional Bundle**





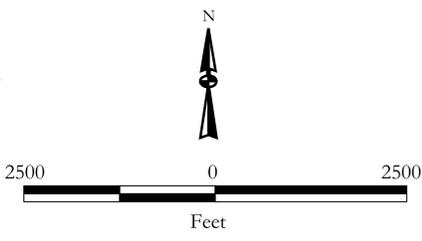
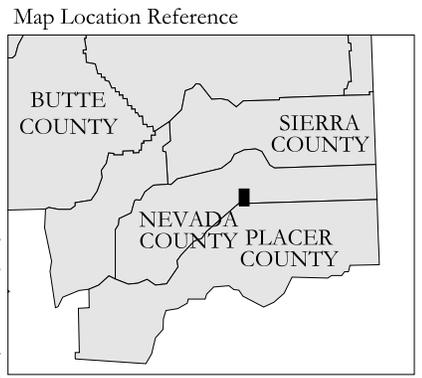
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-  FERC License Area
-  PG&E Land in FERC License Area
-  PG&E Watershed Lands
-  State Highway
-  Roads
-  County Line
-  Stream
-  Recreation Area
-  Waterbody



**Hydroinvestiture EIR**

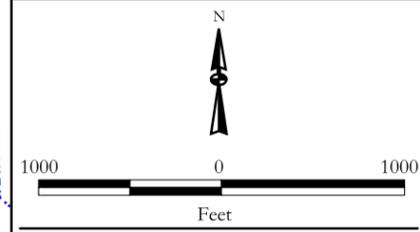
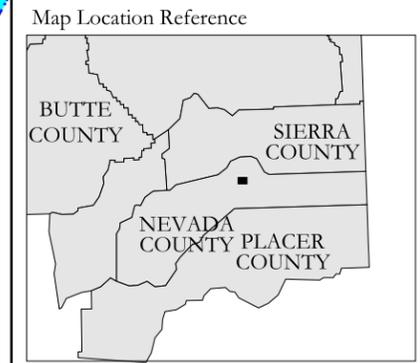
**Figure 4.6 - 9**  
**Lake Spaulding**  
**Recreation Area**  
**Drum Regional Bundle**

**Aspen**  
Environmental Group

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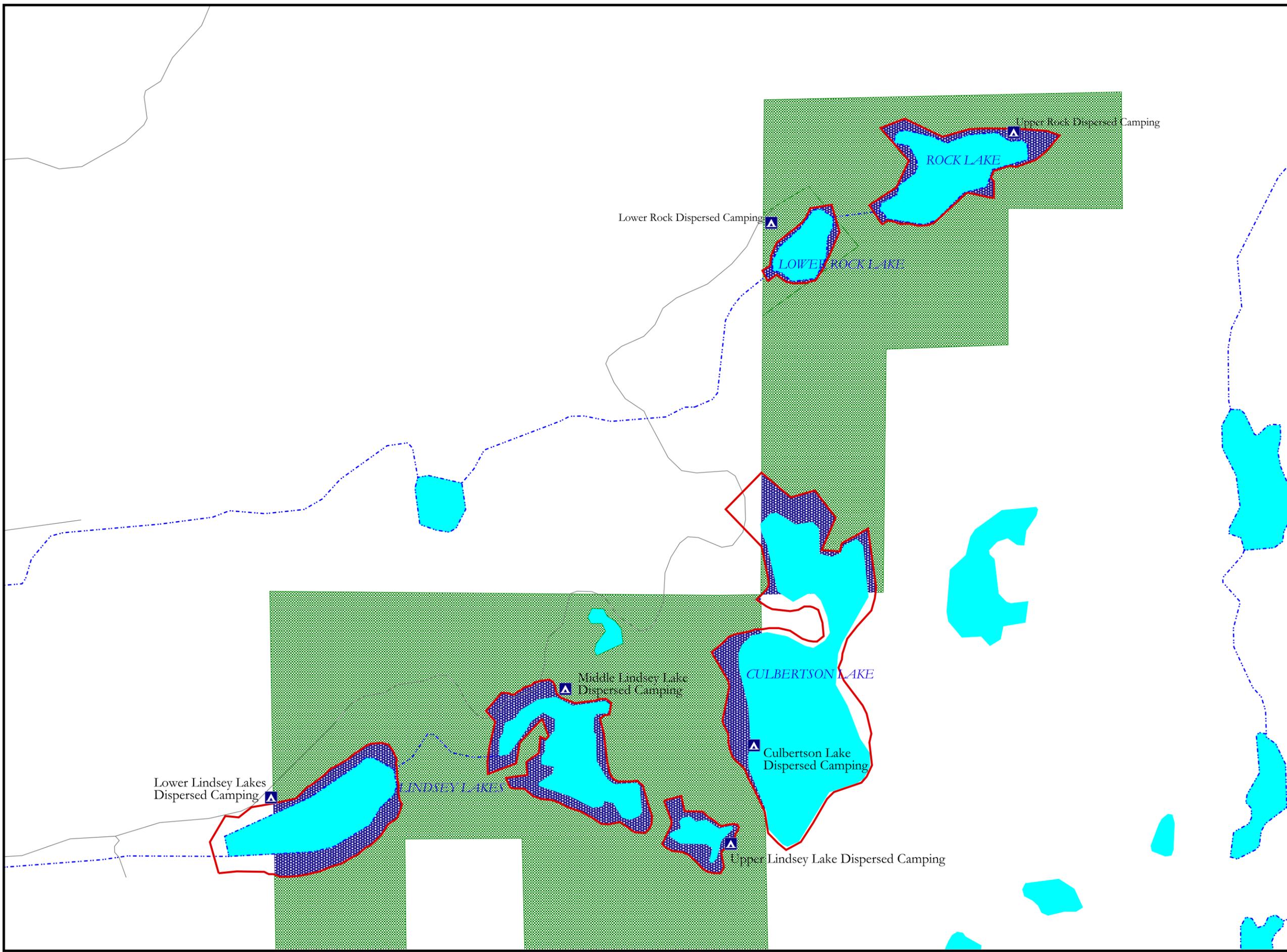
-  FERC License Area
-  PG&E Land in FERC License Area
-  PG&E Watershed Lands
-  Roads
-  Stream
-  Recreation Area
-  Waterbody



**Hydroinvestiture EIR**

**Figure 4.6 - 10**  
**Lindsey Lakes Recreation Area**  
**Drum Regional Bundle**

**Aspen**  
 Environmental Group

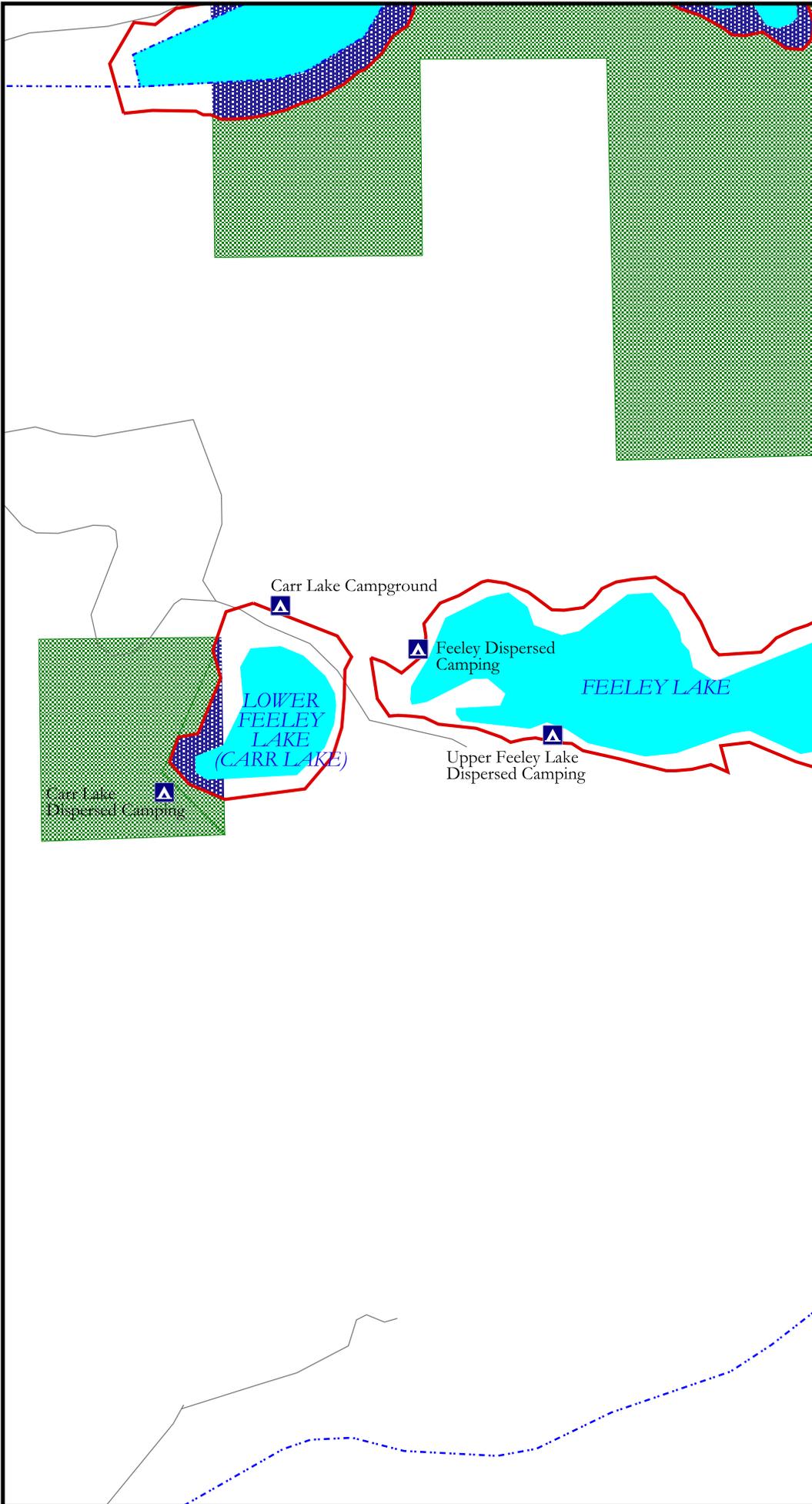


**DISCLAIMER**

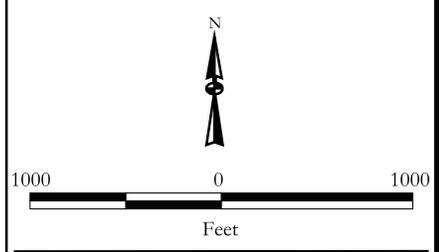
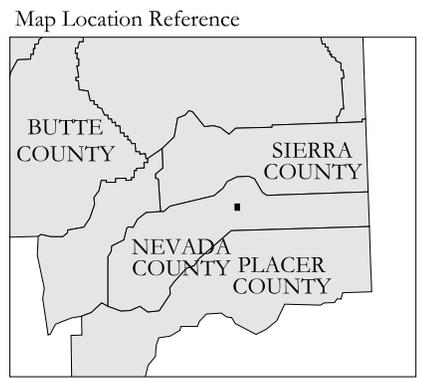
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-  FERC License Area
-  PG&E Land in FERC License Area
-  PG&E Watershed Lands
-  Roads
-  Stream
-  Recreation Area
-  Waterbody



**Hydroinvestiture EIR**

**Figure 4.6 - 11**  
**Feeley Lake**  
**Recreation Area**  
**Drum Regional Bundle**

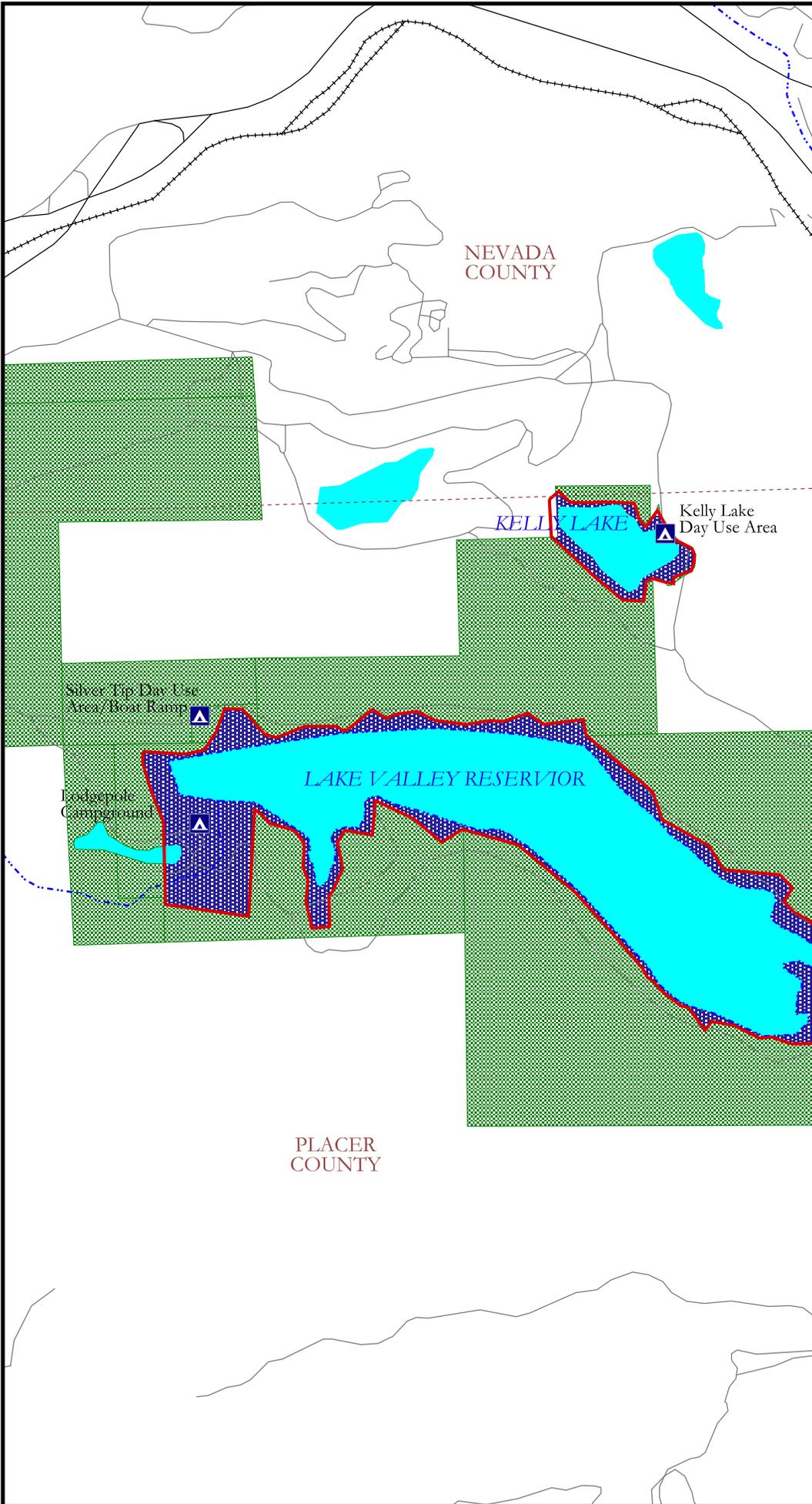
**Aspen**  
*Environmental Group*

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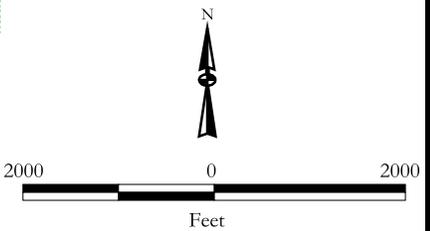
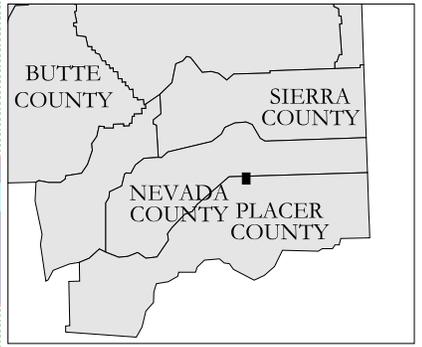
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-  FERC License Area
-  PG&E Land in FERC License Area
-  PG&E Watershed Lands
-  State Highway
-  Roads
-  County Line
-  Stream
-  Recreation Area
-  Waterbody

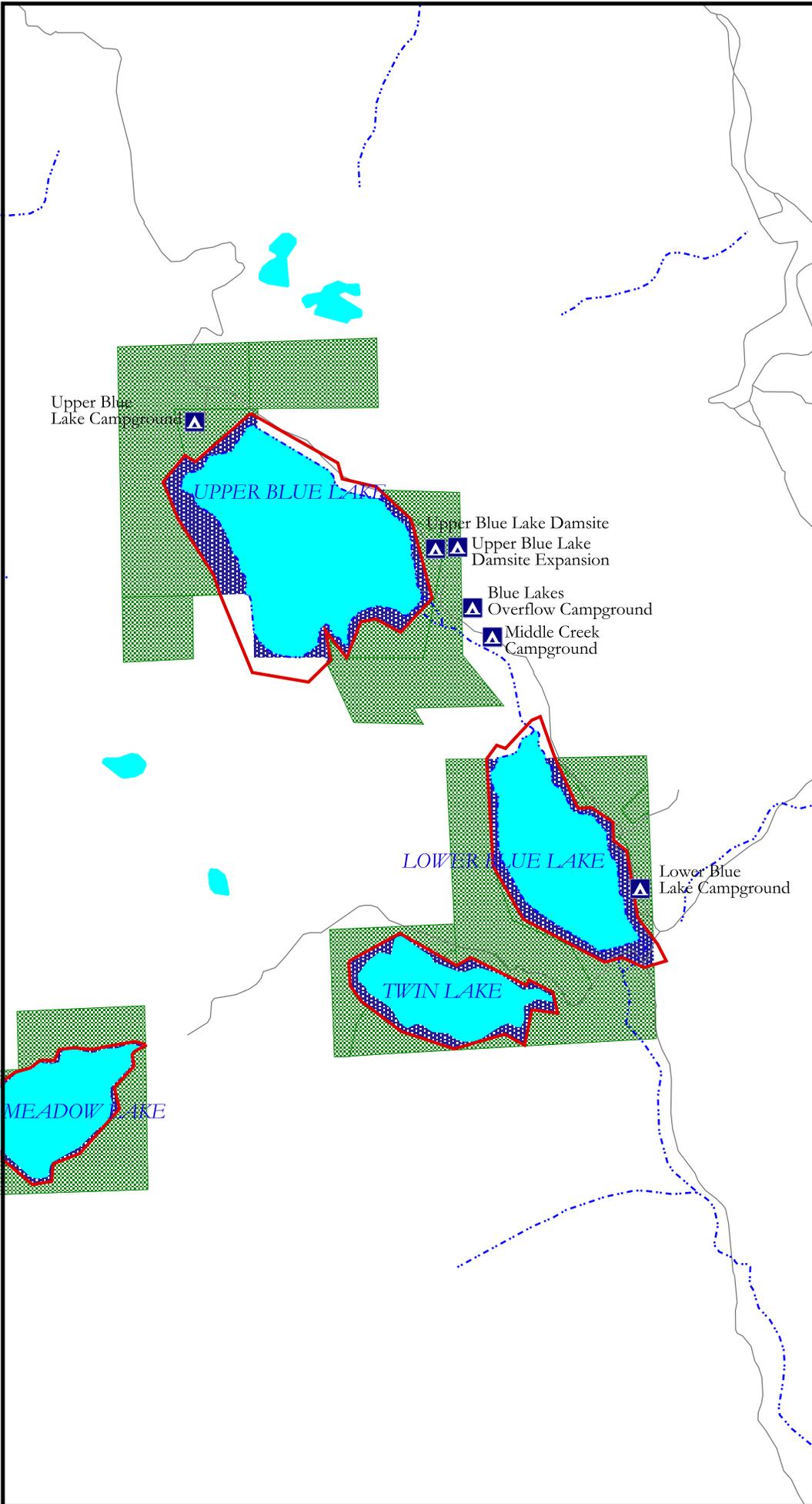
Map Location Reference



**Hydroinvestiture EIR**

**Figure 4.6 - 12**  
**Lake Valley Reservoir**  
**Recreation Area**  
**Drum Regional Bundle**





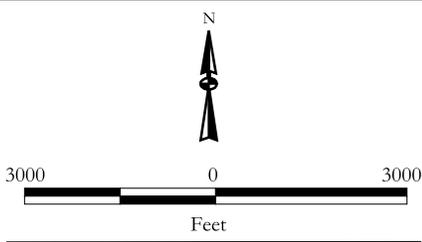
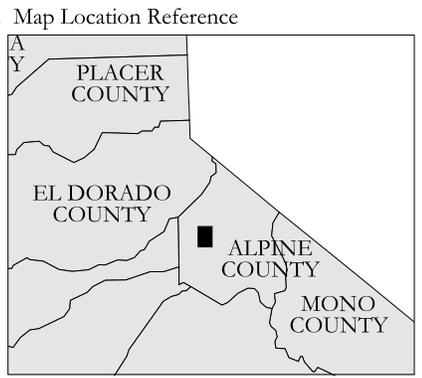
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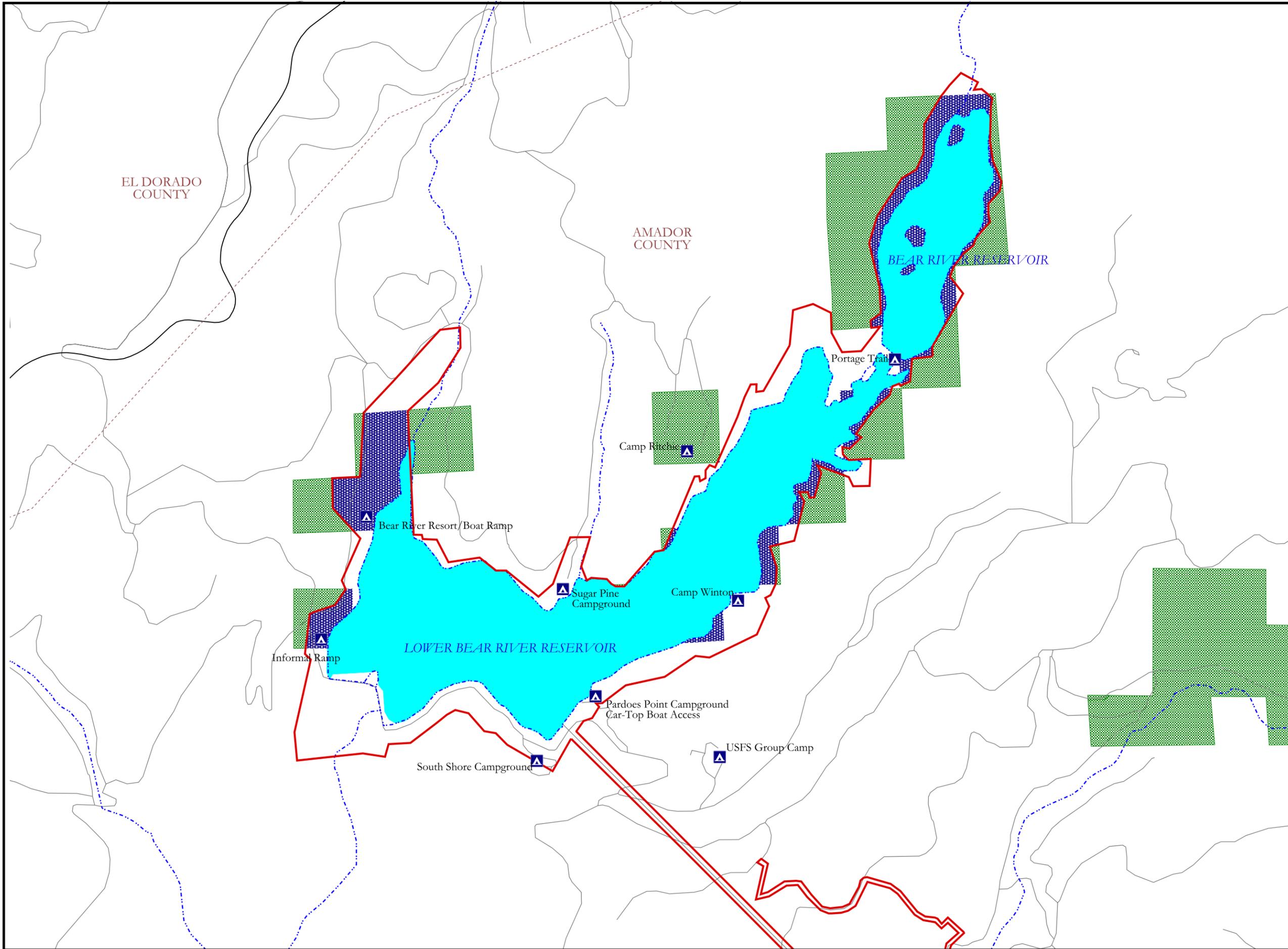
Source: Pacific Gas and Electric Company GIS Data Files; Ferc Boundary, Hydrology, Parcels, Public Lands; and Foothill Associates GIS Program August 2000. GIS Data Projection: UTM Zone 10, NAD 83, Units Meters.

-  FERC License Area
-  PG&E Land in FERC License Area
-  PG&E Watershed Lands
-  Roads
-  Stream
-  Recreation Area
-  Waterbody



**Hydrodivestiture EIR**

**Figure 4.6 - 13**  
**Blue Lakes**  
**Recreation Area**  
**Motherlode Regional Bundle**  
**Aspen**  
*Environmental Group*



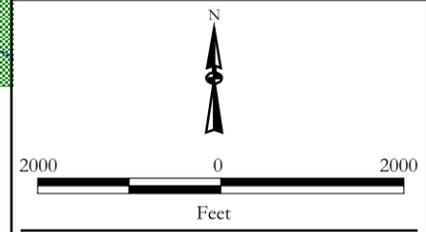
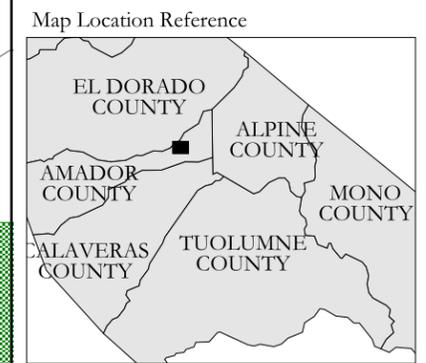
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- FERC License Area
- PG&E Land in FERC License Area
- PG&E Watershed Lands
- State Highway
- Roads
- County Line
- Stream
- Recreation Area
- Waterbody



**Hydroinvestiture EIR**

**Figure 4.6 - 14**  
**Bear River Reservoir**  
**Recreation Area**  
**Motherlode Regional Bundle**  
**Aspen**  
*Environmental Group*

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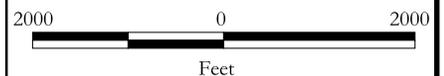
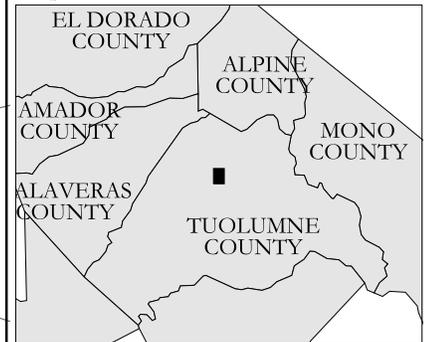
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-  FERC License Area
-  Roads
-  Stream
-  Recreation Area
-  Waterbody



Map Location Reference



**Hydroinvestiture EIR**

**Figure 4.6 - 15  
Pinecrest Lake  
Recreation Area**

**Motherlode Regional Bundle**

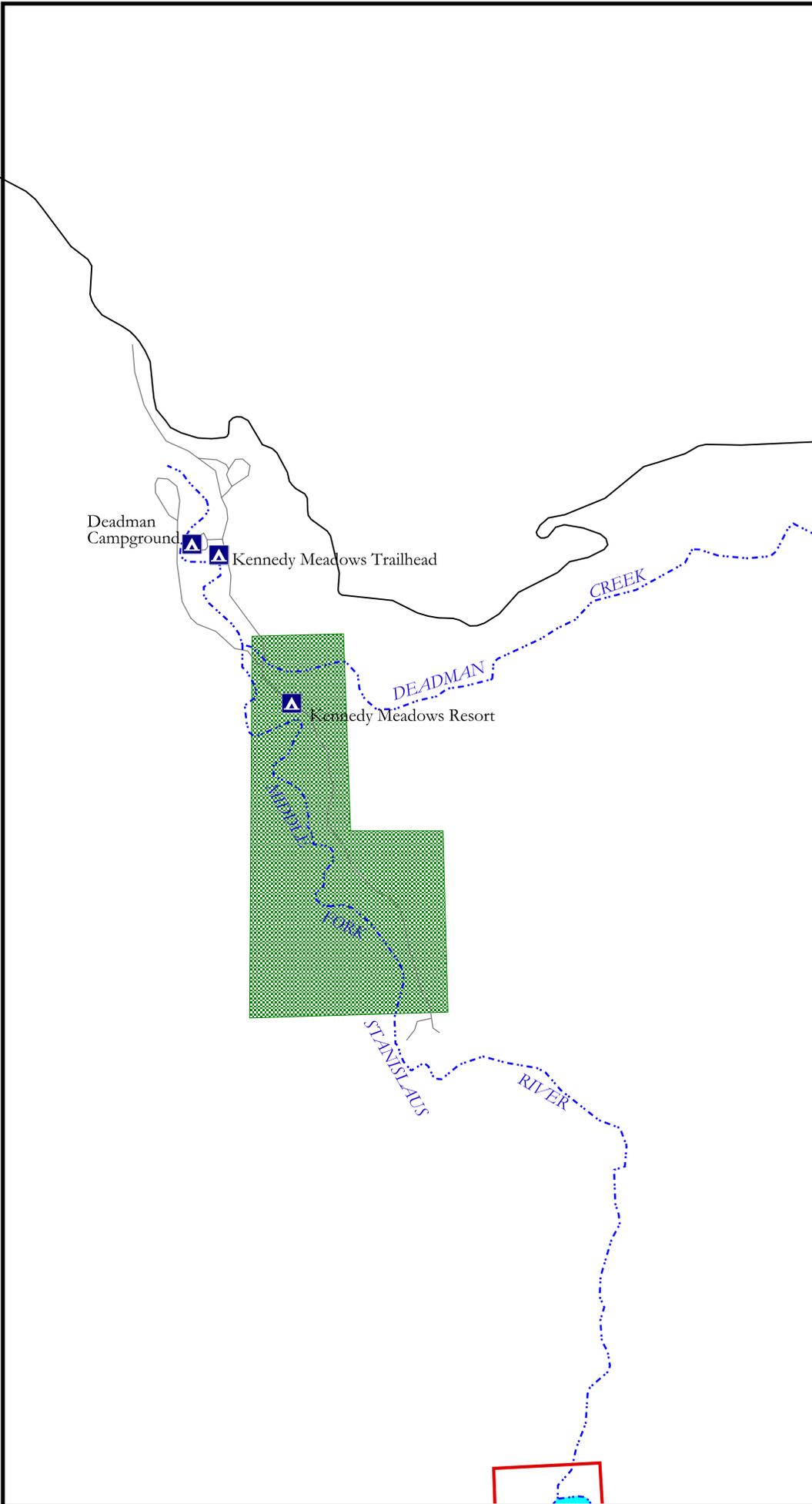


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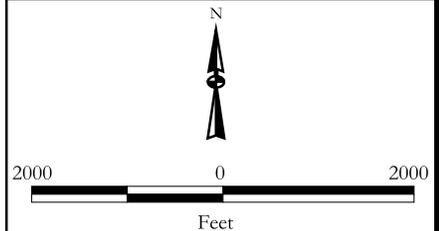
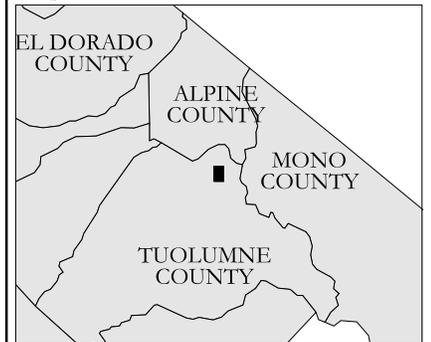
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-  FERC License Area
-  PG&E Watershed Lands
-  State Highway
-  Roads
-  County Line
-  Stream
-  Recreation Area

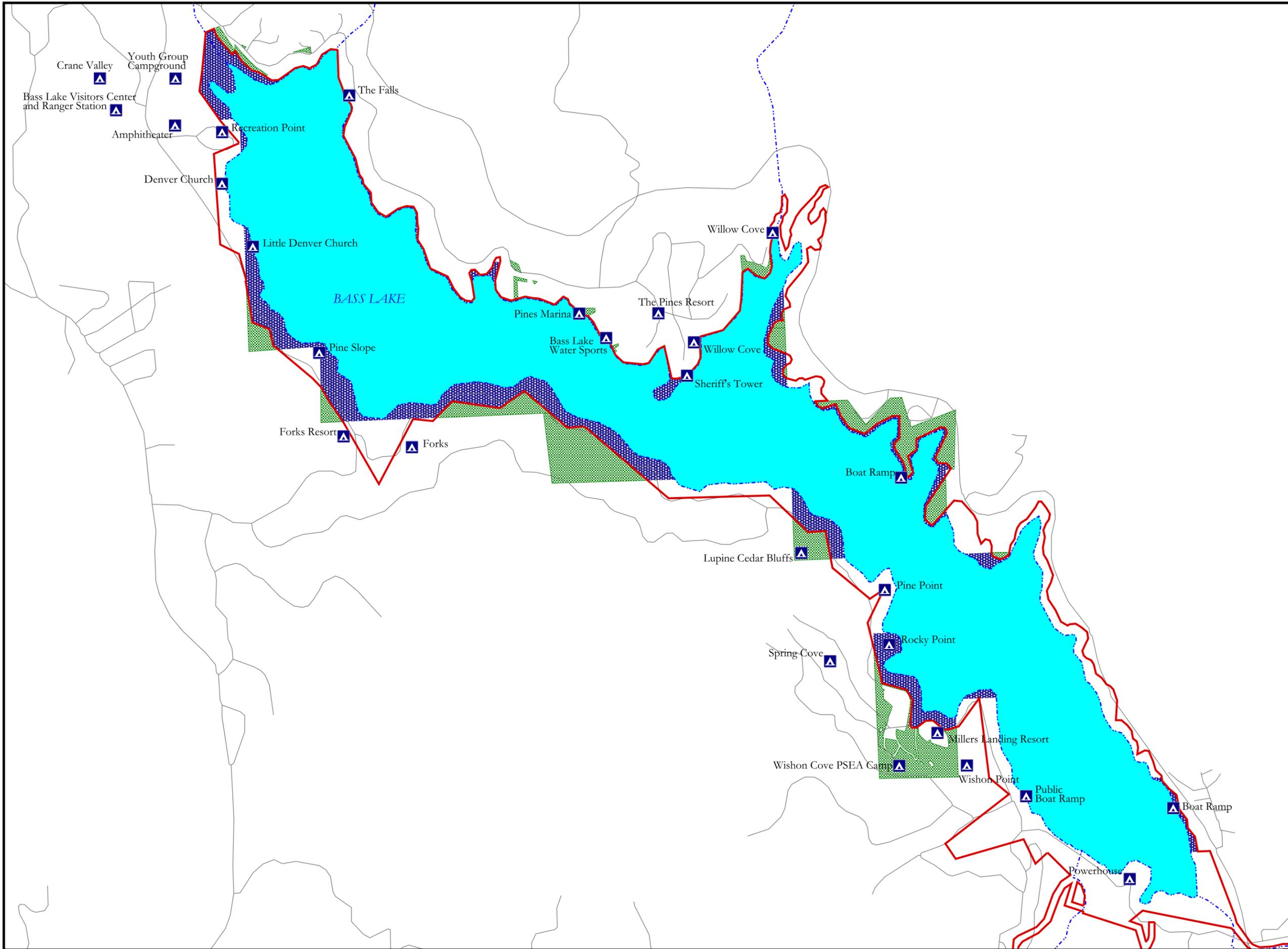
Map Location Reference



**Hydroinvestiture EIR**

**Figure 4.6 - 16**  
**Kennedy Meadows**  
**Recreation Area**  
**Motherlode Regional Bundle**





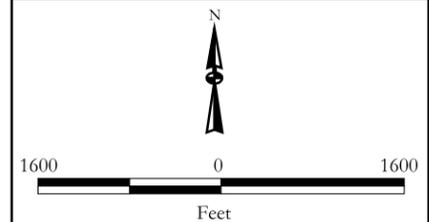
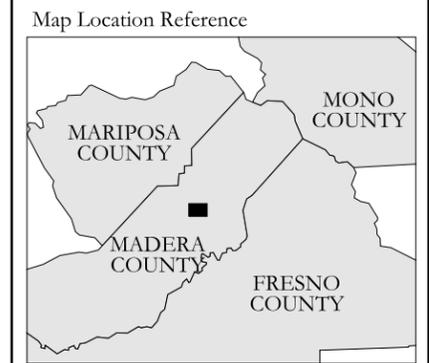
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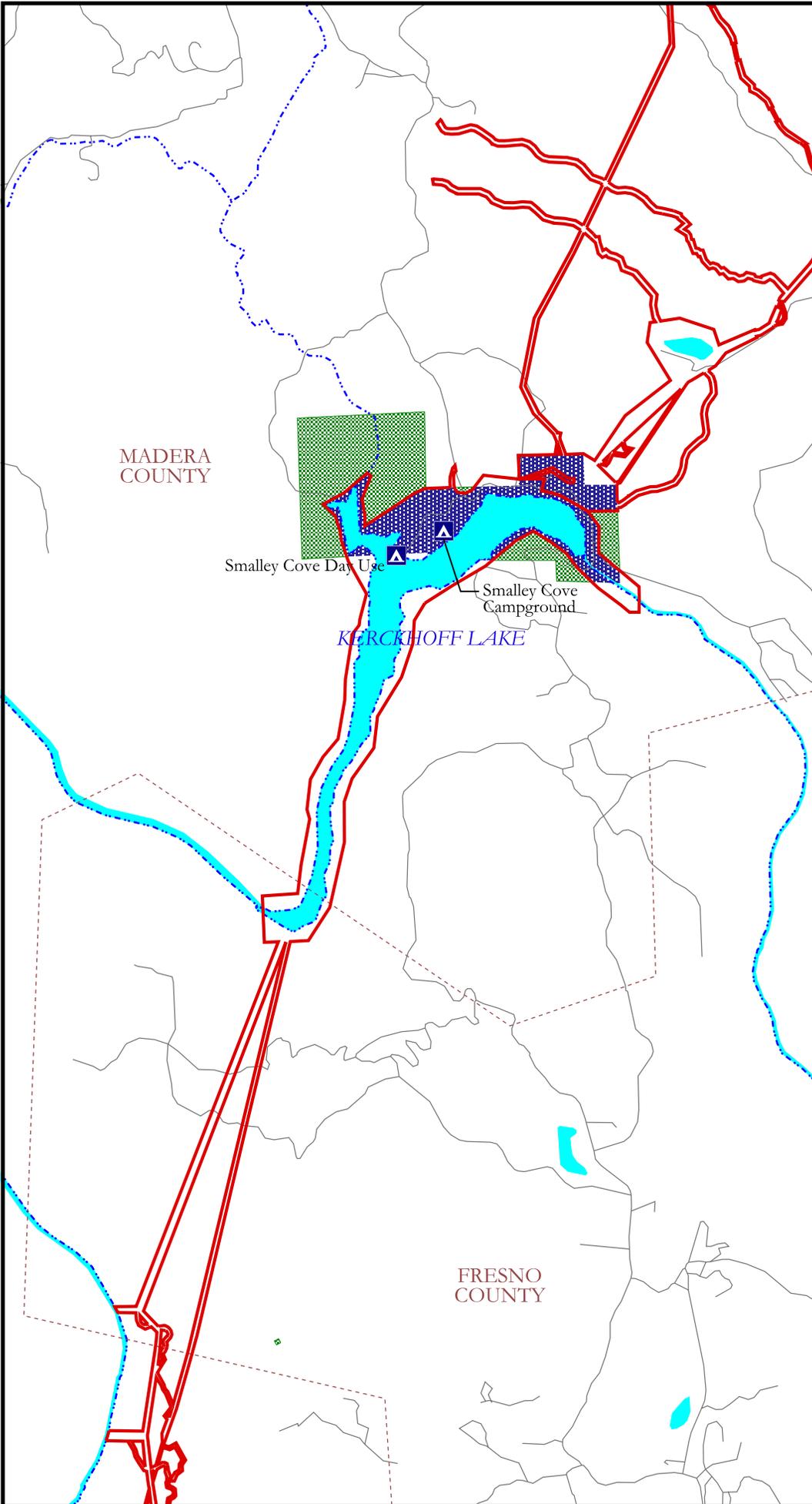
-  FERC License Area
-  PG&E Land in FERC License Area
-  PG&E Watershed Lands
-  Roads
-  Stream
-  Recreation Area
-  Waterbody



**Hydroinvestiture EIR**

**Figure 4.6 - 17**  
**Bass Lake**  
**Recreation Area**  
**Kings Crane-Helms**  
**Regional Bundle**

**Aspen**  
 Environmental Group



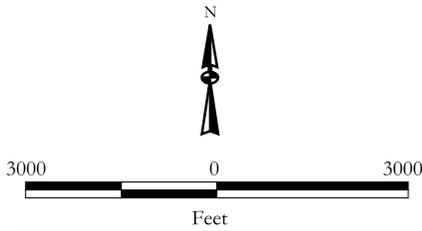
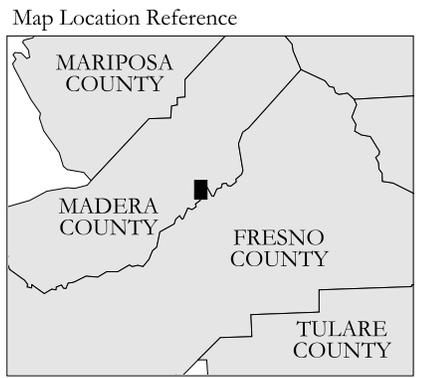
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-  FERC License Area
-  PG&E Land in FERC License Area
-  PG&E Watershed Lands
-  Roads
-  County Line
-  Stream
-  Recreation Area
-  Waterbody



**Hydrodivestiture EIR**

**Figure 4.6 - 18  
Kerckhoff Lake  
Recreation Area  
Kings Crane-Helms  
Regional Bundle**

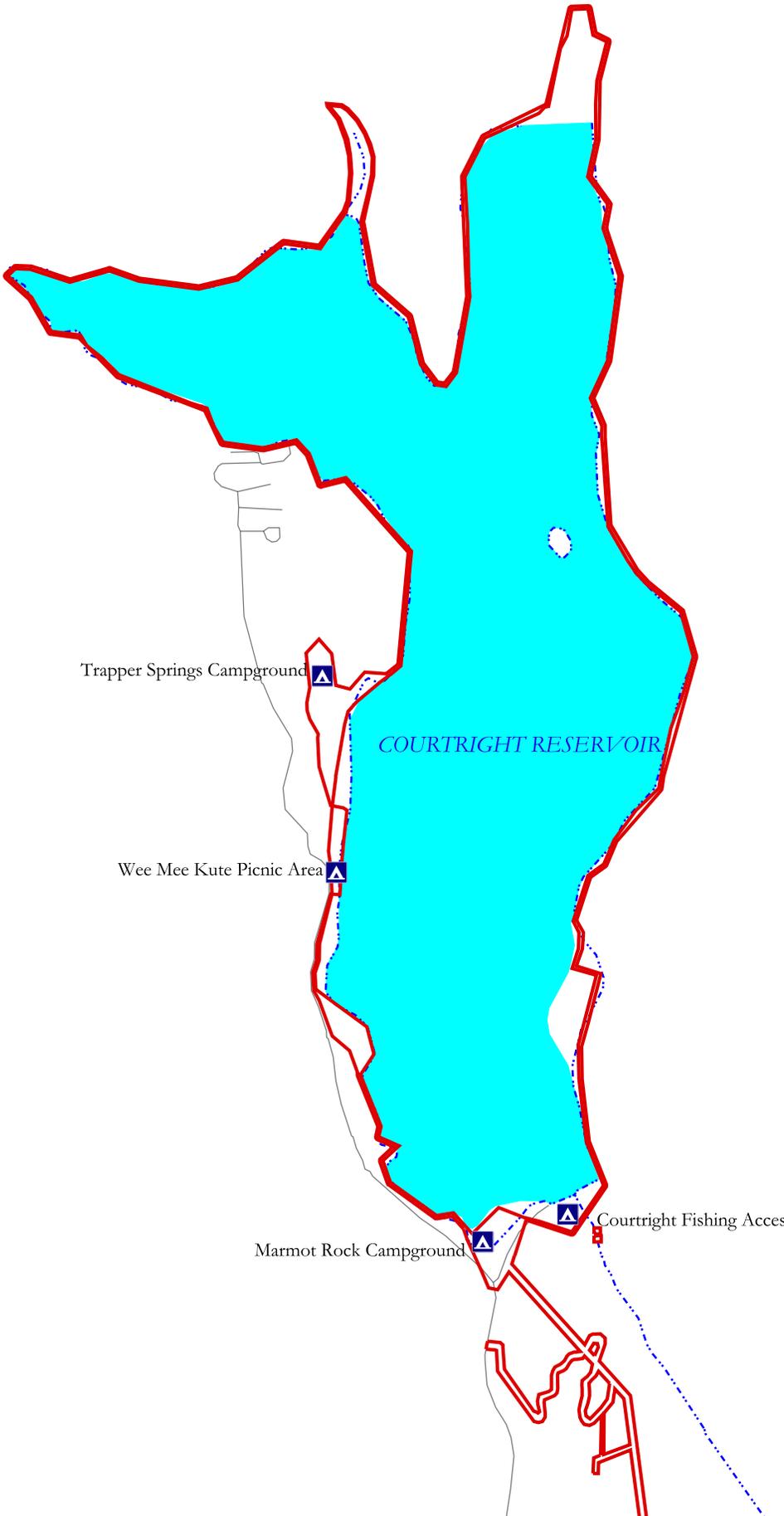


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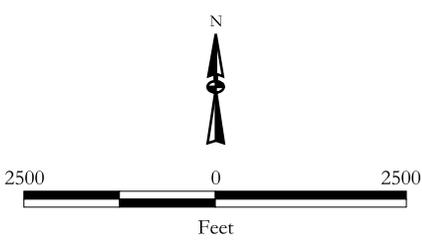
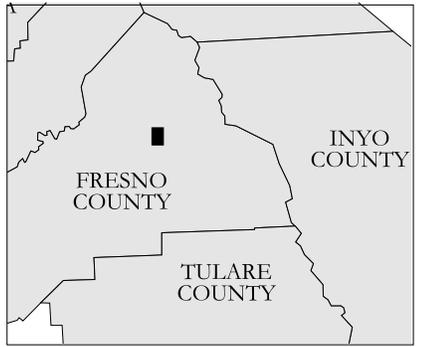
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-  FERC License Area
-  PG&E Land in FERC License Area
-  Roads
-  Stream
-  Recreation Area
-  Waterbody

Map Location Reference



**Hydroinvestiture EIR**

**Figure 4.6 - 19**  
**Courtright Reservoir**  
**Recreation Area**  
**Kings Crane-Helms**  
**Regional Bundle**

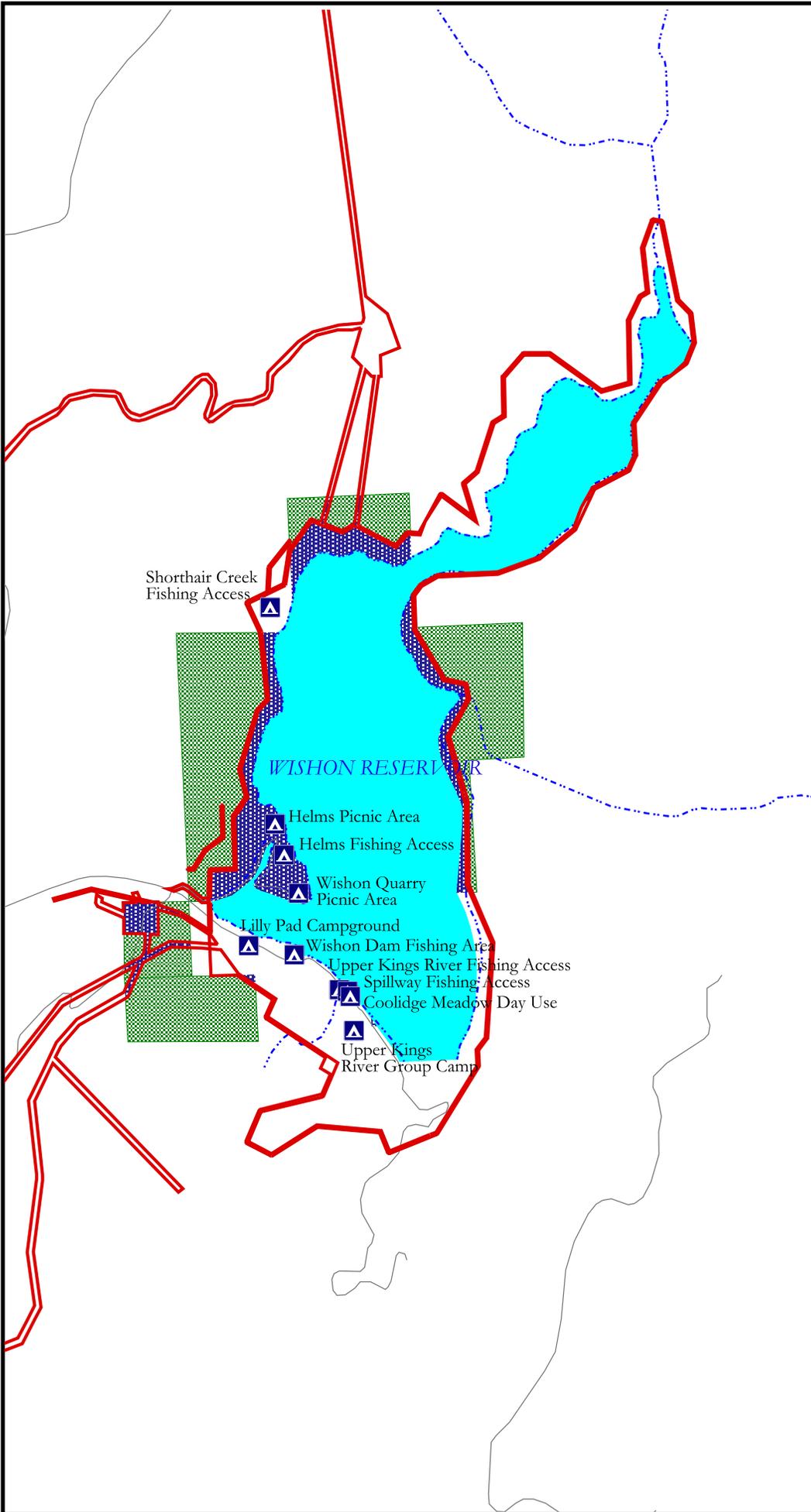


**DISCLAIMER**

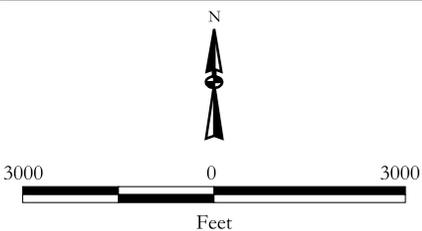
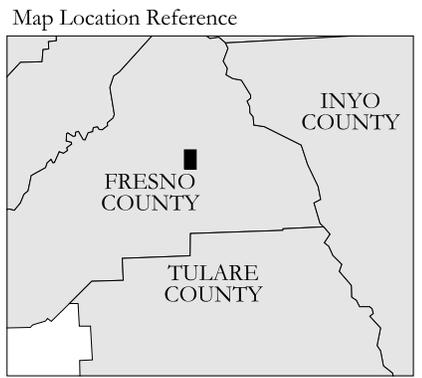
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-  FERC License Area
-  PG&E Land in FERC License Area
-  PG&E Watershed Lands
-  Roads
-  Stream
-  Recreation Area
-  Waterbody



**Hydroinvestiture EIR**

**Figure 4.6 - 20**  
**Wishon Reservoir**  
**Recreation Area**  
**Kings Crane-Helms**  
**Regional Bundle**

